ENGINEERING

NORGE SERVICE MEN ATTEND CONVENTION

MUSKEGON, Mich.—Fifty Norge service managers from 36 cities in the United States and Ontario attended a conference held here on March 7 and 8 for discussion of service problems and conduct of service departments.

On March 6, the Norgemen spent one day in Detroit, where they inspected the Norge rollator plant and held a business meeting at the Detroit-Leland hotel.

A tour through the new Norge evaporator plant was a feature of the service men's first morning in Muskegon, and followed a breakfast at which the visitors heard Herb Morley, plant manager, and G. P. Kennedy, chief inspector, make short addresses.

After a luncheon at the Occidental hotel, the guests heard speeches by Mr. Kennedy, V. C. Rice, superintendant of the refrigeration division, and T. Miller, chemist. At a conference in the afternoon, the service men were addressed by H. Walters and D. Ralston of the field service division, and W. Webb, foreman of the service division.

At the night meeting, Harry L. Spencer, national service manager, R. B. Case, superintendent of the cabinet division, and H. H. Whittingham, vice president in charge of sales of the Detroit Gear and Machine Co., were the principal speakers.

Last day of the convention was spent in tours of other sections of the Muskegon plant, and business meetings at the plant and hotel. John H. Knapp, vice president in charge of sales, was principal speaker at the final banquet meeting.

Baldor Motor

REFINEMENTS ARE MADE IN NEW BALDOR CAPACITOR

(*Concluded from Page 1, Column 1*)

self is mounted in springs on this base.

The stator frame is of the rolled steel type. Punchings and windings embody the sine-distributed magnetic circuit used by Baldor for single-phase induction motors. Leads are brought out through a terminal box also provided in the base. Direction of rotation is reversed by a change in connections outside the motor.

Rotor of the new unit is dynamically balanced, and the slot design and general design have been altered to eliminate the high-pitched magnetic hum peculiar to induction motors, according to O. A. Baumann, secretary of the Baldor organization.

Three sizes of the new motor are available—⅛, 1/6, and ¼ hp. These capacitor motors have approximately 400 per cent of full-load starting torque. Mr Baumann claims, while the split-phase motor has 200 per cent of full-load starting torque.

IOWA FIRM INTRODUCES SERV-ALL BOTTLE COOLER

CLARINDA, Iowa—Equipped with an electric refrigeration unit, a new Serv-all soda pop and beer cooler and server has just been introduced by the Ferris Cooler Works of this city.

The new cooler has 11 channels through which bottles are brought from the refrigerated interior to the top of the case.

Top of the server is of rust-proof metal, and legs are equipped with casters to facilitate moving of the apparatus. With a total bottle capacity of 143 bottles, the unit is designed to cool 72 bottles of beverages per hour.

HERTER REVIEWS PAPERS AT N.A.P.R.E. MEETING

NEW YORK CITY—Three technical papers were reviewed by C. H. Herter at the March 2 meeting of the local chapter, N.A.P.R.E. First was a paper on "Condenser Pipe Failures" by H. C. Guild, the second on "Multiple Effect Compressors" by H. B. Howe of Chicago, and the third "Plant Housekeeping and its Relation to Plant Efficiency" by F. W. Johnson.

New Process Used In Making Tubing

(*Concluded from Page 1, Column 1*)

space relationship with each other. The top roll is adjustable downward against strains.

Behind the saddle are ways carrying a movable crosshead which grips the rear end of the tube. The crosshead is fed a certain distance at each stroke. Revolving a predetermined number of degrees at each stroke is a vise in the crosshead, at the opposite end of the stroke from the feed.

By rotating the tube at the end of the forward stroke, work is done on the tubing by the backward stroke, giving the effect of the material moving concentrically around the tube, and reducing eccentricity.

Longitudinal and rotary feeds are of intermittent character, timed to operate while rolls are moving forward for their next working stroke. The longitudinal stroke is from 10 to 22 inches in the large machines. The rotary feed is ordinarily set for 60 degrees.

Manufacturing advantages cited for the new process are elimination of annealing between passes on the machine, elimination of pointing, pickling, or straightening, and lower production cost. The machine will reduce the outside diameter of tubing by 50 per cent or more per pass.

By producing tubes in the longer lengths, the manufacturer points out that installation costs of refrigeration systems are cut by minimizing fittings and scrap losses, and reduces the chance of failure of splices.

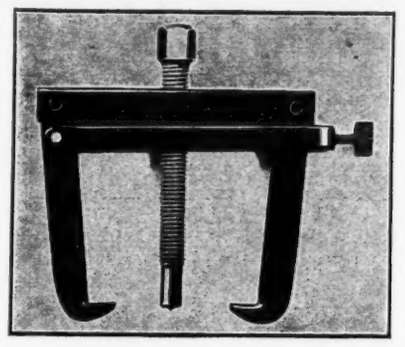
The machine is covered by U. S. reissue patent No. 18,329 granted on Jan. 12, 1932, to G. E. Neuberth, Newark, and assigned to the Tube Reducing Corp., Wilmington, Del.

Kold-Hold Opens Office In New York City

LANSING, Mich.—The Kold-Hold Mfg. Co., manufacturer of commercial refrigerating systems using eutectic brine, has established a New York City office at 370 Lexington Ave., according to W. G. Farnsworth, general manager.

In charge of the new office will be Larry H. Smith. He is concentrating his efforts on sales of Kold-Hold systems for use in refrigerated trucks, ice cream cabinets, and walk-in coolers.

Flywheel Puller



* * *

JACKSON, Mich.—Designed in cooperation with Universal Cooler engineers, a new refrigerator flywheel puller is being introduced by the National Machine & Tool Co. here.

The new device may be used on flywheels ranging from 6 to 18 in. in diameter, according to J. E. Dowley, general manager of the National organization, and weighs 3 lbs.

Its claws are designed to grip between the wheel's spokes, close to the hub. When set in place, a locking side screw prevents slipping.

GERTNER BOTTLE COOLER TO USE FAIRCHILD UNIT

CINCINNATI—A new electrically refrigerated bottle cooler to sell under $100 has been announced by Joseph Gertner & Co. of this city. The refrigeration system employs a Fairchild compressor, designed by the Industrial Development Co., according to E. D. Hensley.

The cooler is built in a cabinet 24½ in. wide, 35 in. long, and 38 in. high, with two top-opening doors on each end of the cooler's top. Each door opens to six pairs of bottles which move forward automatically when the lid is closed. Bottles are replenished at the loading end, Mr. Hensley explains.

Cooling coils are of ½-in. copper tubing, 50 ft. in length, refrigerated by direct expansion. The system is designed to cool 66 bottles in one filling. The refrigerating machine cuts in at 38° F. and off at 34° F.

The Fairchild compressor in the bottom of the cabinet has a 1½-in. bore and 1½-in. stroke, and operates at a speed of 500 r.p.m. The compressor has sliding valves, and a special head designed to keep the gas temperature at a minimum. Sulphur dioxide is the refrigerant used.

Measuring UNITS is not enough: ask also: "What is the VOLTAGE?"

THERE is a newspaper which reflects a principle of journalism so powerful that, by itself, it has built a "city" of its own . . . a city of over 600,000 homes and probably 2,500,000 human beings.

So vast a city cannot be measured in terms of units only. It possesses *voltage*, not only of reading power, but of buying power. For, in more than 600,000 homes, the *New York Evening Journal* is read more thoroughly than any other evening newspaper. So, when you use the *Journal*, you are assured of a hearing *far more receptive* than a mere measurement of units, alone, can ever indicate.

NEW YORK JOURNAL

NATIONALLY REPRESENTED BY THE RODNEY E. BOONE ORGANIZATION

THE NEWSPAPER OF THE INDUSTRY

ELECTRIC REFRIGERATION NEWS

Registered U. S. Patent Office

ESTABLISHED 1926. MEMBER AUDIT BUREAU OF CIRCULATIONS. MEMBER ASSOCIATED BUSINESS PAPERS.

VOL. 8, NO. 12, SERIAL NO. 209
ISSUED EVERY WEEK

Copyright, 1933, by Business News Pub. Co.

DETROIT, MICHIGAN, MARCH 22, 1933

Entered as second-class matter Aug. 1, 1927

THREE DOLLARS PER YEAR
TEN CENTS PER COPY

MAR 25 1933

WRITTEN TO BE READ ON ARRIVAL

FRIGIDAIRE ADOPTS ROTARY; PRICE $96 & UP

Kelvinator Sets Base Price at $97 for 40 Days

MASON EXPECTS PRICE RISE AT END OF PERIOD

New Prices on Entire Line In Effect for 40 Days Only

DETROIT, March 21—New low prices on all Kelvinator household electric refrigerators, beginning at $97 installed plus freight, will be in effect for the next 40 days, announces George W. Mason, chairman of the board and president of the Kelvinator Corp. This "40-day clause" (guaranteeing that the new prices will be in effect no longer than 40 days) is made against the possible effects of an expected upturn in commodity prices.

Expressing his opinion that before the 40-day period has elapsed the cost

(*Concluded on Page 8, Column 1*)

PRICES REDUCED ON ENTIRE LEONARD LINE

DETROIT, March 21—Substantial price reductions in its entire 1933 line of electric refrigerators were announced today by the Leonard Refrigerator Co. of this city and Grand Rapids. The new low price scale, which is effective immediately, places the lowest cost model at $97 installed, plus freight.

"Unusual conditions now prevailing are responsible for these new low prices," explains R. I. Petrie, general sales manager. "Raw materials on hand at both our Detroit and Grand Rapids factories were purchased at the low cost which prevailed before the passing of the banking crisis."

RILEY COMPANY TO MAKE REFRIGERATION SUPPLIES

DETROIT—Incorporation of his organization under the new name of the Riley Engineering Corp., introduction of several new appliances for electric refrigeration, and moving of offices to larger quarters in the Kerr building at 642 Beaubien St. here, has just been announced by Frank B. Riley, president of Standard Refrigerating Appliances.

New refrigeration devices developed by Mr. Riley, and which are being manufactured for him to be sold under the Riley name are an automatic expansion valve, a thermostatic liquid line control valve, a high side float valve for either vertical or horizontal operation, a pressure controlled water regulating valve, a snap action two-temperature valve, and a new line of liquid filters, acid neutralizers, and suction line strainers.

The company will continue to sell Ranco controls of the Automatic Reclosing Circuit Breaker Co., service and equipment valves and Hydron bellows of Clifford Mfg. Co., Ansul Chemical's sulphur dioxide, and com-

(*Concluded on Page 8, Column 5*)

BAGNALL, WICK TAKE OVER DETROIT COPELAND SALES

DETROIT—Distribution of Copeland household electric refrigerators in metropolitan Detroit has been taken over by Lester J. Bagnall and D. C. Wick, who will operate their new organization as a specialty distributorship in this territory.

Until recently, wholesale distribution of Copeland household and commercial refrigeration in most parts of Michigan was handled by a factory

(*Concluded on Page 8, Column 5*)

WESTINGHOUSE CUTS WARRANTY

Detroit Engineers to Discuss Service

DETROIT—Several phases of refrigeration service will be treated in the next meeting of the Detroit section, American Society of Refrigerating Engineers, at 7:30 p. m. Monday night, March 27, in the Hotel Statler.

The program, arranged by T. S. Pendergast of Universal Cooler Corp., includes talks on service education, conduct of service departments for both conventional and hermetic machines, and the application and operation of thermostatic expansion valves for commercial refrigeration.

Speakers include Dan Wile, Detroit Lubricator Co., who will talk on thermostatic expansion valves; E. P. Sorenson, president of Utilities Engineering Institute, Chicago, who will discuss refrigeration training schools; and Roger K. Braun of Kelvinator Corp. who is to talk on factory training and the conduct of distributors' service departments. One other speaker had not yet been announced when the NEWS went to press.

Mr. Pendergast has invited all service men and service managers particularly to attend, as the meeting is open to all.

Index to Specifications

Specifications of 35 makes of self-contained household electric refrigerators are published on pages 18 through 27 of this issue of ELECTRIC REFRIGERATION NEWS. Here is an alphabetical index by trade names (numbers indicate page on which specifications may be found):

Apex	22	Liberty	25
Cavalier	24	Majestic	21
Chilrite	25	Mayflower	23
Copeland	27	Modern	27
Crosley	24	M & E	25
Dayton	27	Napier	26
Frigidaire	21	Norge	23
General Electric	18	Potter	24
Gibson	20	Servel	18
Graybar Ilg-Kold	22	Snowbird	26
Grinnell	26	Standard	22
Grunow	23	Trukold	22
Gurney	25	Uniflow	27
Ice-O-Matic	26	U. S. Hermetic	18
Jewett	19	Universal Cooler	24
Jomoco	21	Westinghouse	20
Kelvinator	20	Zerozone	23
Leonard	21		

GUARANTEE UNIT FOR ONE YEAR

Machine Replaced For $10 During Next Three Years

MANSFIELD, Ohio, March 21 (Special wire to ELECTRIC REFRIGERATION NEWS)—The guarantee period on the refrigerating unit in all Westinghouse domestic electric refrigerators has been reduced from four years to one year, effective today, according to R. C. Cosgrove, manager, refrigeration division, Westinghouse Electric & Mfg. Co.

During the three years succeeding the guarantee period, the hermetically sealed mechanism will be replaced with a new unit at a flat charge of $10, according to the new plan.

Previously Westinghouse has followed the 4-year service plan now in force on General Electric refrigerating machines.

Announcement has also been made of an increase of $10 in the list price of models AP-60 (6.1-cu. ft. porcelain model) and AP-73 (7.2-cu. ft. porcelain model).

Williams Is Made General Manager Of Majestic

CHICAGO—Announcement of the appointment of Le Roi J. Williams as executive vice president and general manager, succeeding D. M. Compton, recently resigned, was made by B. J. Grigsby, president of the Grigsby-Grunow Co., at the close of a week-long meeting of the factory field men held at the Edgewater Beach hotel here March 6-11.

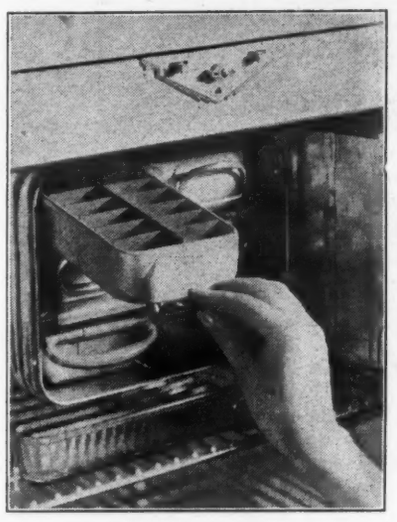
Also announced was the appointment of M. E. Paradise as general

(*Concluded on Page 8, Column 4*)

E. B. Newill and 'Boss Ket'

E. B. Newill, vice president in charge of engineering for Frigidaire Corp., shows the new Frigidaire rotary compressor to C. F. Kettering, president of General Motors Research Corp.

Twist of the Wrist



Frigidaire's new cam-action ice tray handle permits easy removal of the tray.

MORATORIUM CALLED ON TIME PAYMENTS

DETROIT—Refrigeration Discount Corp., which finances the time payment paper of Kelvinator Corp. and Leonard Refrigerator Co., has recognized the exigencies of the national banking holiday by giving all its customers the option of extending their March payments to the end of their contracts without additional charge, states C. M. Armstrong, vice president.

In a letter to customers, written on the first day that President Roosevelt's bank closing proclamation went into effect, Mr. Armstrong expressed the confidence of his organization in the ability of the federal government to meet the emergency, and gave notice of the extension. His letter in part follows:

"We have absolute faith in our Federal Government to enact such legislation that will very shortly restore confidence in our banking institutions, as well as aiding very materially in bringing business back to a more satisfactory state.

"We also have the same high opinion of your honesty and integrity as at the time we discounted your contract. To further assure you of the sincerity of our opinion, we are, if you so desire, prepared to extend your March installment to the end of your contract, and will do this without any additional charge."

Customers in every part of the country, upon receipt of this notice,

(*Concluded on Page 4, Column 1*)

GIBSON ISSUES SCRIP TO MEET BANKING EMERGENCY

GREENVILLE, Mich.—Gibson Electric Refrigerator Corp. last week issued emergency scrip to tide over the payroll situation until the present banking situation in Michigan clears up sufficiently to allow payrolls to be met in currency.

Fifty local merchants, meeting in the city hall here, passed a resolution agreeing to cooperate with the Gibson Refrigerator Co. in its emergency scrip issue to the extent of their individual ability.

The scrip is backed by a certificate of deposit with the Greenville State Bank with face value of 20 per cent in excess of issue, and payment is unconditionally guaranteed by the Gibson Refrigerator Co. The scrip will be redeemed in cash, on or before July 1, 1933.

The scrip has been issued in denominations of 50 cents, $1, $2, and $5.

STANDARD LINE EMPLOYS F-114 AS REFRIGERANT

Cabinets Are Styled; Evaporator Centered; New Ice Trays

DAYTON—Frigidaire dealers and salesmen will start sale on March 31 of the 1933 Frigidaire household line—a six-model "super series" of all-porcelain refrigerators ranging in size from 4.2 to 15.1 cu. ft., and a new two-model "standard series" using a rotary compressor and a new refrigerant, Freon-114.

Priced at $96 and $138 (installed, plus freight), respectively, these two latter models will be advertised as "using no more current than one ordinary light bulb."

In all models of the two new series, the evaporator is located in the top

(*Concluded on Page 4, Column 4*)

AKER TO DISTRIBUTE SEEGER EQUIPMENT

BUFFALO, N. Y.—C. W. Aker, distributor of retail food store equipment and developer of grocery store merchandising plans and floor layouts, with offices and showrooms at 1650 Main St. here, has been appointed distributor for Seeger commercial refrigerator cabinets and refrigerated display cases.

Mr. Aker's territory will include all of western New York state and the Province of Ontario in Canada. The sales organization will consist of an office manager and three or four outside salesmen.

1933 GRAYBAR ILG-KOLD WILL BE SHOWN APRIL 1

CHICAGO—The 1933 Graybar Ilg-Kold refrigerator will be on display April 1 at main branch houses of the Graybar Electric Co. (through which it is distributed) and in many of the Graybar sub-branch houses and Graybar dealer showrooms, according to officials of the Ilg Electric Ventilating Co., manufacturer of the Graybar Ilg-Kold line.

Main Graybar branch houses in the following cities will show the new line: New York, Boston, St. Louis, San Francisco, Chicago, Detroit, Richmond, Seattle, Philadelphia, Pittsburgh, Kansas City, Los Angeles.

New Graybar Ilg-Kold models feature automatic freezing control, specially designed evaporators and long stroke, slow-speed compressor design.

There are seven models in the line, three all-porcelain and four with lacquer exterior and porcelain interior. The models range in size from 4.5 net cu. ft. capacity (NEMA rating) to 8.5 net cu. ft.

The evaporator design permits automatic freezing control—thus eliminat-

(*Concluded on Page 32, Column 2*)

FEDDERS MANUFACTURES NEW ICE CUBE MAKER

BUFFALO—With a capacity for freezing 240 lbs. of ice (2,304 cubes) in 24 hours, a new ice cube maker is being introduced by the Fedders Mfg. Co. here. The new unit makes 60 lbs. of ice per freezing.

Low side and cabinet of the new ice maker comprise a single unit which is designed for remote installation of the compressor. A condensing unit of ½ hp. or more is suitable for use with the ice maker.

Each tray of the new product is housed in an individual sleeve, and between the tray fronts and the shield is a space in which air circulates to prevent the fronts from freezing to the

(*Concluded on Page 8, Column 1*)

SPECIFICATIONS OF 273 HOUSEHOLD REFRIGERATORS IN THIS ISSUE

The year's electric refrigeration

USES NO MORE CURRENT THAN ONE ORDINARY LAMP BULB!

It's not just another model, but an utterly new development in electric refrigeration. This Frigidaire instantly and automatically opens up a tremendous new market heretofore untouched.

ECONOMY—Nothing like it known before. Think of a refrigerator that uses no more current than one ordinary lamp bulb! Here is a powerful sales weapon—tuned to the times.

CONVENIENCE—Look at the new conveniences formerly found only in higher priced models. Automatic defrosting that saves time and trouble. Automatic ice-tray releasing. Extra room for tall containers. A compartment for frozen storage. All are features that help make sales.

BEAUTY—A new and distinctive style in cabinets. Finished in gleaming, snow-white Dulux and enhanced by chromium hardware. *Here's eye-appeal*—the all-important "first step" in every sale.

QUALITY—As in *all* Frigidaires, this model is quality-built throughout. It has the dependability that has made Frigidaire first choice of 2,250,000 buyers—a million more than any other make.

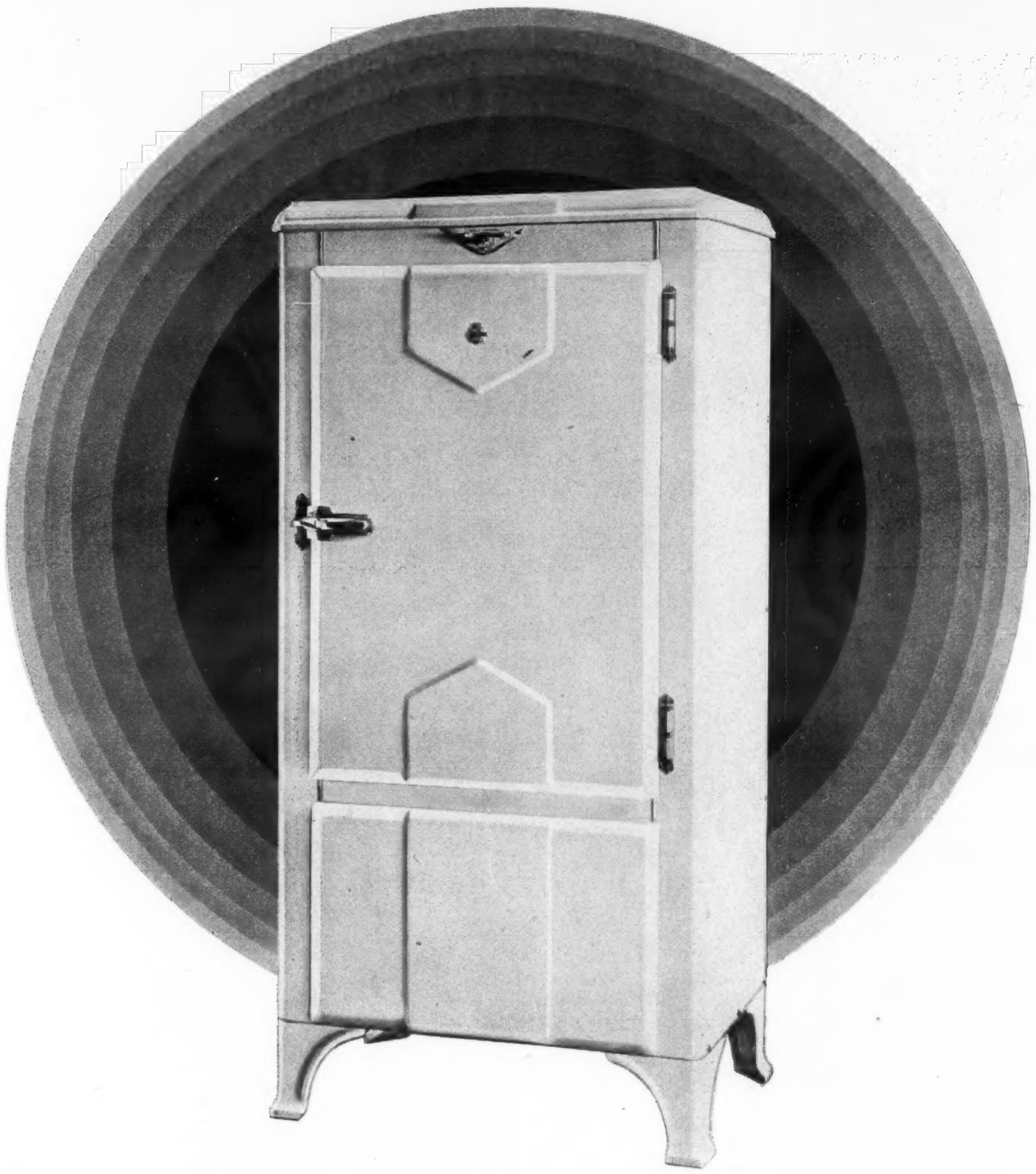
1/4 MORE FOOD SPACE—New, space-saving insulation—a scientific development recently perfected—permits small *outside* cabinet dimensions with greater food space inside.

* Plus freight. Installation and federal tax paid.

G FRIGIDAIRE M

A General M

greatest development in



ALL-PORCELAIN SUPER SERIES DE LUXE FRIGIDAIRES AT NEW LOW PRICES

Equally sensational are the six new de luxe All-Porcelain models. They represent more progress in styling, engineering, construction and value than has been made in any single year during the history of the industry.

The Super Series Frigidaire has dozens of new and exclusive convenience features such as automatic defrosting, adjustable shelves, interior light, automatic ice-tray releasing that permits the trays to slide out of the freezer at the touch of a finger, double Hydrator capacity, greatly increased ice capacity. Its beautiful cabinet of Porcelain-on-steel, inside and out, has a smartness of style that is entirely new in the refrigeration industry. And this new beauty, new convenience, new quality and new economy is offered at far lower prices than those for which All-Porcelain Frigidaires have ever been sold before.

Write for full details—If you're looking for the surest, quickest route to extra sales and profits in 1933, write to Frigidaire for full particulars. New features—plus sensationally new low prices make the Frigidaire 1933 franchise the outstanding opportunity in the industry. Dealers and salesmen can profit by it. *Now*—at the opening of the season—is the time to get the facts. Frigidaire Corporation, Subsidiary General Motors Corporation, Dayton, O.

Frigidaire

Motors Value

MORATORIUM CALLED ON TIME PAYMENTS

(Concluded from Page 1, Column 4)

began to flood the ReDisCo offices with letters of appreciation. In many of them the writers announced their intention of making their March payments without taking advantage of this offer.

All Kelvinator and Leonard distributors and dealers also were notified of ReDisCo's move at the same time the general letter to customers was sent out. This notice to the sales organization read in part:

"Realizing the temporary banking situation and how it may affect many of our customers in respect to paying the March installment on their contracts which we have discounted, we have decided the fair and equitable thing for us to do is grant them some relief.

5 Dealers Appointed in San Diego Territory

SAN DIEGO, Calif.—Five new electric refrigerator dealerships have just been franchised in this area, according to J. Clark Chamberlain, secretary-manager of the Electric Refrigeration Bureau here.

University Avenue Furniture Co. of San Diego, Gandy Hardware Co. of La Mesa, and Weir Hardware Co. of San Ysidro have signed dealer contracts with the Kelvinator San Diego Co.

Heilbron Electric Co. has signed a Leonard dealer franchise with the Electric Supplies Distributing Co., Inc., Leonard distributor here. LaMotte & Callaway, Inc., Westinghouse distributor, has secured the Swain-Poe Furniture Co. of San Diego as a new dealer.

Inspecting the Baby

C. F. Kettering, president of General Motors Research Corp., and E. G. Biechler, president of Frigidaire Corp., look over the new Standard 43—which has a rotary compressor and uses the new refrigerant, F-114.

Open the door and THERE it is!

The SHELVADOR

U. S. PATENT 1898922

The Greatest Sales talk ever built into a refrigerator . . . *Patented exclusive feature of the*

New CROSLEY Electric REFRIGERATOR

Here is the most sensational selling feature ever thought of in ELECTRIC REFRIGERATION . . . the most sensational advance in cabinet design since the first icebox was brought out . . . a feature so self-evident, so new, so convenient and helpful that every housewife after one glance will say: *"That's what I must have!"*

NOW the housewife merely opens the door . . . and *there* is the egg, bacon or the orange, or the butter, or any other small and ordinarily hard-to-find thing. It's on its shelf in the door. No reaching. No searching. No stooping. No lost time. No spilled food. *There* is what *you're* looking for.

Increases "Usable" Capacity 50%

Shelvador makes the "small" refrigerator "larger" by increasing its usable capacity. Try to put everything that goes into the Shelvador into your refrigerator and you'll be amazed. An orange takes as much "shelf room" as a bottle of milk in the ordinary refrigerator. . . in the Shelvador it only takes as much room as an orange should.

An Exclusive Crosley Feature

Shelvador is the newest and most important improvement in electric refrigeration since the invention of this great home necessity. To buy an electric refrigerator without the Shelvador is not only to deprive oneself of the great convenience and economy of Shelvador, but is to buy something already out-dated. For no electric refrigerator can possibly be modern in the fullest sense without this feature.

SHELVADOR is an exclusive, patented feature of the new Crosley Electric Refrigerator. No other refrigerator manufacturer dare use it.

Low Cost — High Quality

When you buy a Crosley Electric Refrigerator, you not only save money on first cost, because of Crosley's quality-mass-production methods; but you also save money because of the greatly enlarged "usable" capacity of the Crosley Electric Refrigerator due to the Shelvador. If the Crosley Refrigerator did not have the Shelvador, it would still be the world's most remarkable refrigerator value. With the Shelvador, it goes so far beyond the ordinary concept of "your money's worth" that there is nothing with which the value may be compared.

The Crosley Electric Refrigerator, famous last year for its trouble-free, service-free operation, has this year been refined in several points to make it even better. It is not possible, at any price, to get a better refrigerator value than the Crosley. It is not possible, in any other refrigerator to get the Shelvador.

See your Crosley distributor. Study the Shelvador. Instantly you can see its advantages and convenience. Instantly you can see how annoying and unnecessary it is to have electric refrigeration without the Shelvador.

MODEL D-35 NET contents — 3½ cubic feet. Shelf area—8 square feet. Overall Dimensions: Height, 50⅝". Width, 23⅞"; Depth, 24"; Leg Height, 10⅞" No. ice trays 2; No. ice cubes 42.

MODEL D-45 NET contents — 4½ cubic feet. Shelf area—10.6 square feet. Overall Dimensions, Height 56⅞"; Width, 23⅞"; Depth, 24"; Leg Height, 10⅞" No. ice trays 3; No. ice cubes 63.

MODEL D-60 NET contents—6 cubic feet. Shelf area—11.5 square feet. Overall Dimensions: Height 57½"; Width, 29½" Depth, 25¾"; Leg Height, 10½"; No. ice trays, 3; No. ice cubes 63.

ALL PRICES INCLUDE DELIVERY..INSTALLATION..ONE YEAR FREE SERVICE

Montana, Wyoming, Colorado, New Mexico and west, prices slightly higher.

The Crosley Radio Corporation - Cincinnati

POWEL CROSLEY, JR., President. The Home of "the Nation's Station"-WLW

CROSLEY Electric REFRIGERATOR WITH SHELVADOR

U. S. PATENT 1898922

Frigidaire Uses Rotary Compressor, Freon 114 In Standard Line

(Concluded from Page 1, Column 5)

center of the food chamber and is chromium plated. Ice cube trays have cam handles to facilitate their removal from the evaporator shelves, and all metal ice tray grids are tapered to make easy the task of removing cubes from the tray.

Styled cabinets are used in both of the new series. Super-series cabinets have softly rounded edges, and raised straight-line designs on food chamber and unit compartment doors. Cabinets of the rotary series are designed to give the effect of streamlining.

While the company's super series is the result of refining and redesigning the 1932 line, the standard series' 4.1- and 6.1-cu. ft. models are new members of the Frigidaire family.

Standard series is powered by a 1/20-hp. self-contained rotary compression unit employing natural air circulation for cooling, according to A. A. Kucher, Frigidaire engineer.

The compression element, located below the food chamber, consists of a 1/20-hp. split-phase motor, directly connected to a rotary compressor. The shaft carries an eccentric around which a ring impeller is fitted.

Suction and discharge chambers are separated by a blade which follows the impeller and is guided by a slot in the stationary cylinder. Both motor and compressor operate in a vertical position within a welded steel casting.

Motor Temperatures

Efficient motor temperatures are maintained by heat-radiating fins on the casting. "Compressor efficiency of 3.8 B.t.u. per watt in a 90° room at 15° evaporator temperature (with suction gas at room temperature) is the result of an efficient motor, accurate fits of the three moving parts, and use of F-114 (dichloro-tetrafluoro-ethane), a low-pressure fluorine gas which has a pressure of 12 in. at 15° F.," says Mr. Kucher. This refrigerant is non-inflammable, non-irritating, and non-corrosive.

A large flat steel condenser is spaced from the back of the cabinet to provide a flue for natural air circulation. Mounting for the compressor is carried by the condenser.

Refrigerant entering the evaporator flows first through the freezing shelves, and then through the remainder of the evaporator.

Refrigerant Restrictor

Supply of liquid refrigerant entering the evaporator is controlled by a "restrictor." This device balances the amount of refrigeration produced with the varying amount of refrigeration required, the engineer points out. out.

This balance is effected "by calibrating the entire system so that changes in room temperature or load within the cabinet alter the inherent capacity characteristics of the system and the compressor while running, to compensate for these variations," he says.

Operation of the system in warm room temperature, under standard conditions, is continuous. A thermostat cycles the unit under light load conditions. An automatic defroster provides for defrosting without melting the ice in the trays. Exterior of the cabinet is finished in Dulux, the interior in porcelain. Statflex (aluminum foil) is the insulation used in this series. All food chamber shelves are removable and adjustable.

Compressor, condenser, and evaporator can be removed as a unit from the cabinet. To accomplish this, the nameplate is first removed, the evaporator is then released and swung through the door and over the top of the cabinet, and hooked into the condenser. The condenser which carries the compressor is released, and the entire unit may then be withdrawn from the cabinet, Mr. Kucher explains.

Visible Features

Each model of the super series embodies a number of visible features in addition to cabinet styling.

The three largest models have one vegetable hydrator and one fruit hydrator with ribbed bottoms to provide for moisture settlement. Four smaller models have one hydrator of similar type.

Above the food chamber is a triangular "instrument board" edged in lightning bolt design and containing the starting switch, nine-point cold control, and defrosting switch. This switch is set manually when defrosting is desired and springs back into place automatically when all frost has melted from the evaporator coils. Box temperature is held below the "danger line" during the defrosting period.

Ice Tray Handles

Ice cube trays are equipped with cam handles which hug the ends of the trays when in normal position, but break the ice between the tray bottoms and evaporator shelves when pulled out and down, thus making removal of the trays easy.

Each super series model has one or more rubber ice trays, one or more metal trays with rubber grids. Some metal trays have covers.

All super models have adjustable shelves, interior lighting, and semi-concealed hardware designed by Ternstedt.

As in the standard line, circulation of the refrigerant through the evaporator is directed first through the ice tray shelves, then through other portions of the evaporator.

Frigidaire's two-cylinder compressor has been redesigned to make it a more compact unit. The compressor casting is now made in a single piece to eliminate one gasket.

Stataflex insulation is used throughout all cabinets of the super series.

The Super-43 has 4.2 cu. ft. of net storage capacity, makes 60 cubes (7½ lbs.) of ice at one freezing, and sells for $151, installed, plus freight. Priced at $191 is the Super-63, with a 5.7-cu. ft. net food storage capacity, and an ice cube capacity of 78 cubes.

Having 7.1 cu. ft. of net storage space is the Super-73, selling for $231. This model makes 120 ice cubes at a single freezing.

To be featured in Frigidaire's 1933 sales of the super line is model 93, with a 9.1 cu. ft. net storage capacity. This model makes 120 cubes (15 lbs.) of ice at one freezing, and is priced at $274.

Models 123 and 153

Model 123, selling for $316, has 12.1 cu. ft. of net storage space, and makes 156 cubes of ice (19½ lbs.) at one freezing. Model 153, with a net food storage capacity of 15.1 cu. ft., makes 208 cubes (26 lbs.) of ice at one freezing, and has two rubber trays, two metal trays with rubber grids, and four regular trays with tapered grids. Its price is $396.

Models 123 and 153 are two-door models. To be sold this year as a "special duty model" is the all-porcelain WP-18, with 18.3 cu. ft. of net food capacity. This refrigerator was priced at $620 last year, but will be offered this year for $549.

In preparation for the manufacture of its 1933 refrigeration line, Frigidaire Corp. re-tooled and re-equipped its Plant No. 2 at Moraine, five miles from Dayton, at a cost of $1,100.000, according to company officials.

What H. W. Newell, Frigidaire vice president in charge of sales, asserts is one of the most extensive advertising and sales promotion campaigns ever employed by Frigidaire Corp., will assist the company's distributors, dealers, and salesmen in their 1933 sales activities.

Teaser Campaign

Starting March 27, a teaser advertising campaign will break in large newspapers and leading magazines having an estimated total circulation of 30,020,000, and Frigidaire dealers will use teaser window displays to arouse public interest.

On March 31, leading newspapers and magazines will introduce the new Frigidaire, dealers will display the new line, and will use direct mail pieces, window displays, announcement folders, catalogs, window stickers, tire covers, lapel buttons, and local newspaper advertising to call attention to the product.

Teaser and announcement copy will feature the electric light story, price of the 4.1-cu. ft. standard model, and the "economy, convenience, quality, and beauty" of the entire 1933 Frigidaire line, according to Earl D. Doty, advertising manager. Similar copy will be used throughout the year.

Preview for G. M. Employes

Approximately 100,000 General Motors employes will be given previews of the new Frigidaire line, and special descriptive pieces will be delivered to all G. M. executives and workers, says Mr. Doty.

Departing from its customary advertising policy, Frigidaire Corp. will not use national radio advertising this year.

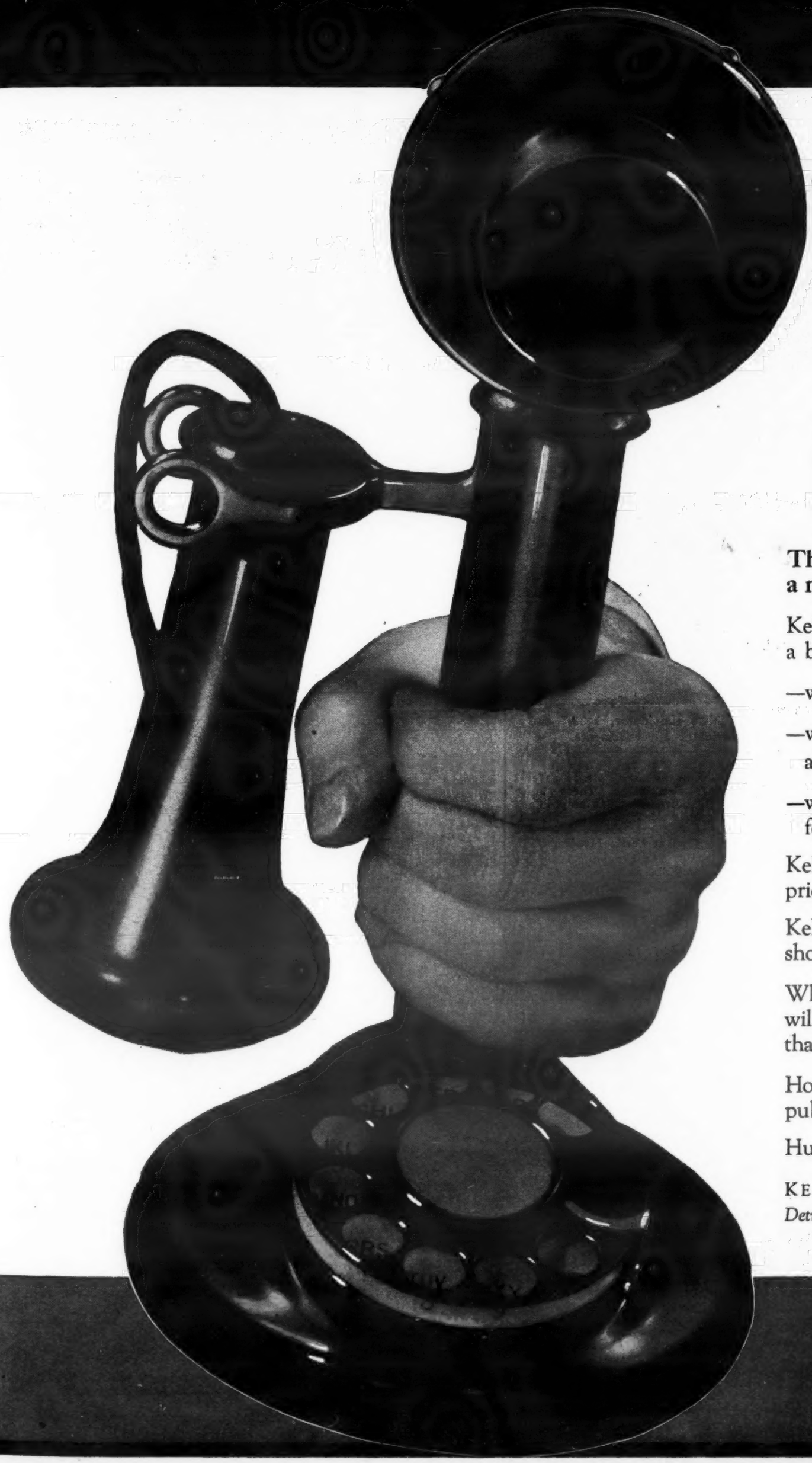
A four-page rotogravure section has been prepared, and will be distributed among 2,000,000 refrigerator prospects, among them all those who purchased General Motors automobiles during 1931 and 1932.

Between March 31 and April 30, which is to be Frigidaire's "announcement month," dealers will distribute among prospects "mystery books"—which show third-dimension pictures of the new Frigidaire and of its special features when read through a pair of colored glasses furnished with each booklet.

A complete new series of slide films has been produced for use of salesmen in making home demonstrations, and new demonstration albums are now being sent to every Frigidaire salesman in the country.

Featuring the company's 1933 "Sell Nines or Better" theme is a new dealer plan book which gives facts and features of the new line, presents messages of Frigidaire factory executives, and points out the market to which the new series should appeal.

A KELVINATOR FOR $97.00 INSTALLED Plus Freight



BUT THIS PRICE IS GUARANTEED FOR 40 DAYS ONLY

HURRY!

This big news is not the announcement of a new model "built-to-a-price."

Kelvinator has picked from its brand new 1933 line a beautiful, *full* sized, *full* powered standard model,

—with more than 4 cubic feet of food space

—with a powerful standard compressor that runs only about a third of the time and at low current cost

—without any compromise on size, power or performance.

Kelvinator has said—"The price is $97 until material prices go up."

Kelvinator believes that materials will go up—and should—for this will mean better times for all of us.

When material prices advance, the price of this model will be increased—for Kelvinator has already decided that there will be no cutting of quality to hold a price.

However, Kelvinator guarantees this $97 price to the public for 40 days.

Hurry!

KELVINATOR CORPORATION, *14245 Plymouth Road, Detroit, Mich. Factories also in London, Ont., and London, Eng.*

(690)

BY GEORGE F. TAUBENECK - - -

Vance Woodcox Sees An Earthquake

A graphic eye-witness account of the series of earthquake shocks that rocked the Los Angeles area a little more than a week ago was brought back back to Detroit last Thursday by VANCE C. WOODCOX, director of advertising and sales promotion for Kelvinator Corp.

Mr. Woodcox, who wound up a distributor-contacting tour of the western states in Los Angeles, was the first Detroiter to return from the stricken area. With him in Los Angeles was Mrs. Woodcox.

Contrary to reports that emanated from the West Coast city, a frenzy of hysteria did not prevail in the streets, he says. Nor did the business section lie in ruins.

"It is true," said Mr. Woodcox, "that the population was frightened. Immediately after the first shock, we rushed out of our hotel into the street. There we found thousands of people in all sorts of dress. Many women were in tears, but they were more or less calm. People just didn't seem to realize what had struck the town.

"It was only when the tragic news filtered in from Long Beach that a major catastrophe had struck that residents of Los Angeles began to realize the extent of the 'quake."

To prevent a rush of sightseers to Long Beach, the authorities, acting with unparalleled speed for "authorities," closed all roads leading to that city, Mr. Woodcox said.

Mr. and Mrs. Woodcox were in their suite on the seventh floor of the Biltmore Hotel when the 'quake struck at 5:50 o'clock Friday afternoon, March 10.

"We were just preparing to go out to dinner when the lights began to dim and the whole building began to sway," he said, describing his own sensations.

"At the peak of the first shock, the floor seemed like the top deck of an ocean liner in a storm. It was actually difficult to keep one's footing. The swing of the building was like that of a mammoth pendulum. On the last swing, my only thought was that nothing could prevent the building from collapsing.

"With all lights out and no elevators running, we had to make our way to the street by the stairs. Although the first shock had entirely ceased when we reached the lobby several minutes later, the giant chandeliers were still swinging in at least a six-foot arc. That gives some idea of the amount of swaying we experienced on the seventh floor."

No noise accompanied the 'quake, Mr. Woodcox said. It was evidenced only in the swaying and cracking of the plaster. In at least one room of the hotel, water pipes burst under the strain imposed by the swaying, with the inevitable result that the suite was flooded.

"The hotel, which is a 12-story structure, was completely emptied 10 minutes after the first shock was felt," Mr. Woodcox continued.

"Leaving the hotel, we went immediately across the street. There we found a taxi driver, gaping at the building in amazement. He told us that the sight of the tall structure swaying as though in the grip of a strong wind was nothing less than awe-inspiring."

Mr. Woodcox explained that the Biltmore in Los Angeles is of special construction to guard against earthquake damage. The main injury to the building was that to the plaster, to some of the plumbing and to the huge flagpole, which snapped off and toppled to the street below.

A sort of "orderly confusion" reigned in the streets of Los Angeles immediately after the first 'quake. People remained in the streets, rather than in their homes, Mr. Woodcox observed and experienced four more shocks, of lesser intensity, before midnight. The sound of fire engines and police sirens could be heard on every hand.

The 'quake was not without its element of humor. When the shocks were felt, thousands of motorists experienced the bumping sensation that usually results from a flat tire. Many of them stopped their cars and climbed out for the purpose of checking their tires.

"Sleep, of course, was impossible; so at midnight we set out for Caliente with a party of friends. And then we ran into another harrowing experience. A thick fog set in. We couldn't see beyond the radiator cap of the car," relates Mr. Woodcox.

"We were driving along the ocean highway. And through the radio in the car we kept hearing warnings that a tidal wave might strike the coast. It was a most unpleasant experience, but we reached Caliente safely. Even there we could feel the recurring shocks."

Before he arrived at Los Angeles, Mr. Woodcox passed through an experience that might have proved fatal not only to him but to other passengers on the train. He learned that at one stage of the journey, the train ran wild, with a dead engineer at the throttle.

For some time, the train roared along uncontrolled, with the fireman unconscious of the fact that his mate had been stricken. When the former finally made the startling discovery, he took control and brought the train to a stop.

Miss Kelvinator, 1933

This lovely little girl has been chosen "Miss Kelvinator, 1933," and her face will appear in ensuing Kelvinator advertisements.

Marshall T. Jones

For a long time we've been meaning to say something about the efficient and capable MARSHALL T. JONES, chief of the Electrical Equipment Division of the United States Bureau of Foreign and Domestic Commerce, and his interest in the electric refrigeration industry.

Mr. Jones is an assiduous reader of ELECTRIC REFRIGERATION NEWS, and a close follower of events in the industry. Often he has information which we need and which he passes on to us to help us get good stories for the paper.

Particularly has he been helpful in developing foreign news sources for us, and sending us reports of U. S. commercial attaches in various parts of the world.

Highly interested in statistics, he has marshalled the forces of his useful bureau in the cause of extracting valuable figures from cagey sources. He knows how to get information, and what to do with it after he has obtained it.

We commend Mr. Jones and his bureau to you, should you want any information which might be obtained from the Department of Commerce.

Hint: If you want to become one of our Best Friends, help us ferret out facts and figures. They're the breath of life, the wine of inspiration, etc., to your humble correspondents.

* * *

Crosley & Roosevelt

"We've got to keep the refrigeration business from going the way of radio," is a cry that has been heard often in this industry during the last two or three years.

Granting that the business of manufacturing and selling radios may not have been so profitable recently, we shouldn't forget that radio made a number of manufacturers very rich indeed. Which is more than can be said for refrigeration.

Take POWEL CROSLEY, JR. and BILL GRUNOW, for instance. Just as outward manifestations of their wealth, it might be noted that both own pipe organs and both own and operate private airplanes.

(Which reminds us that we hear "Bugs" Baer has suggested two new exhibits of a museum of American antiquities: a yacht, and a kept woman.)

All this reflection is leading up to the inside dope that, we understand, the "mystery plane" which is to serve as President Franklin D. Roosevelt's personal carrier is an amphibian practically identical to that owned by the president of Crosley Radio Corp.

If this report is true, the two ships will be the only aircraft of their type now in private use, although the United States navy owns several bombers of this design. These planes are twin-motored Douglas amphibians with capacity of four to six passengers, pilot, and mechanics. They are manufactured at Santa Monica, Calif.

Mr. Crosley has been operating his Douglas amphibian for more than a year.

* * *

What? No Bathtub?

WALTER WINCHELL'S column covered on March 13 the General Electric-Warner Bros. special train (described on this page in the March 8 issue of ELECTRIC REFRIGERATION NEWS) in the string of newspapers he serves as follows:

"The famous '42nd Street' special train with the stars from the Coast (which Gen'l Electric is sponsoring with Warner's) is equipped with every gadget imaginable—except a bathtub . . . But it has an imitation Malibu Beach . . . I mean Maliboob Beach."

Whereupon we rise in cleanly indignation to point out that while there was no bathtub, there was a shower-bath! We didn't discover it until the Saturday night following Roosevelt's inauguration in Washington, but there it was, and it was a humdinger, too. Almost knocked you flat with its force.

* * *

Harry Terry

HARRY TERRY, account executive of the Cramer-Krasselt advertising agency (which handles the Norge account), has his own way of answering the objection of electric refrigeration dealers and distributors that national advertising isn't worth its cost. He has given it at several Norge dealer meetings recently. Norge distributors heard it at Muskegon. Here it is:

"Suppose you had started out to call on one million people, one each day, so the job would be completed by the present time.

"It would have been necessary to start 'way back in the crude dawn of history—before Rome was founded, centuries before the great philosophers and sculptors of Greece were born, nearly 900 years before the beginning of the Christian Era.

"You would have succeeded in calling on 278,600 persons on the morning Caesar, reeling under the dagger of Brutus, fell dead under Pompey's statue in the Roman senate.

"If all went well, no sickness, no holidays, if you had toiled faithfully, the 839,000th person would have been called upon on the day Columbus stood on the Santa Maria and dimly on the horizon saw the wooded shore of San Salvador.

"Napoleon, his heroic old guard falling around him on the twilight fields of Waterloo, might have been the 965,000th person.

"On the fourth of March, when President Roosevelt delivered his inaugural address from the Capitol steps, you, after calling ceaselessly for 27 centuries, would have called on one million people.

"Yet, over night, through the marvelous power of advertising, the Norge advertising message can be delivered to 10 times one million people, or 20 times that number, if you so desire."

* * *

236 Years Old

There's a battle royal in the Leonard field organization to discover which distributor can produce the group of four dealer establishments with the greatest combined business age, according to R. I. PETRIE, general sales manager of the Leonard Refrigerator Co.

LEE STRATTON, district manager at Cincinnati, recently turned up four dealer organizations in Louisville, Ky., which had been in business a total of 203 years.

"He was as proud of them as though he had had quadruplets," said Mr. Petrie.

Then along came W. A. GRISWOLD, sales manager of the E. S. & E. Co., distributor at Albany, N. Y., to ruin Lee's triumph.

Mr. Griswold reported he has four accounts that aggregate 236 years in business. They are the Standard Furniture Co., Albany, 25 years; Holzheimer & Shaul, Amsterdam, N. Y., 38 years; Griffin Lumber Co., Hudson Falls, N. Y., 65 years; and the G. V. S. Quackenbush Co., Troy, N. Y., 108 years.

* * *

C. T. Mutchner

Friends of C. T. MUTCHNER, public relations director of Frigidaire Corp., will be interested to learn that the diplomatic "Mutch" will be leaving Dayton within a few days for a well-deserved rest in the West.

"Mutch," who has been under the weather for some time, has secured a leave of absence so that he may regain his pep out where the ozone is plentiful.

Not so long ago he was a welcome caller at these offices, and during his stay he told this "bright sayings of children" anecdote—which he heard from CARY GAMBLE, a Frigidaire field man:

One of the sons of a Frigidaire salesman in Rochester, while studying the meaning of different words, said to his mother:

"I can't understand the difference in the meaning of the words, 'amateur' and 'professional'."

"An 'amateur'," answered his mother, "is one who does something because he likes to do it, while a 'professional' is one that does something because he is paid to do it.

"For instance, you play baseball because you like it, and are therefore an amateur, but if you got paid for playing, you would be a professional."

"Oh," says the little boy, "I see now. Then, Daddy is an amateur salesman."

* * *

Barter

In Akron, Ohio, where the tires for your automobile are made, and where Goodyear builds zeppelins for the United States government, a lawyer by the name of RICE E. HERSHEY has announced that he will exchange legal services for "fresh eggs, chickens, ham, or what have you."

First deal made by advocate Hershey was to trade his office safe for an electric refrigerator.

* * *

J. S. Tritle

J. S. TRITLE, vice president and general manager of Westinghouse Electric & Mfg. Co. and president of N.E.M.A., has written an article for the February issue of the *American Magazine* in which he does a corking good job of saying that this world of ours isn't at a standstill now, never has been, and never will be.

Title of the article is "Just Look at What's Ahead of Us!" And in it he declares convincingly that we should not consider the present economic situation bewildering and discouraging, but should rather try to get set for better days ahead by grasping and using the "obvious ideas at his elbow."

Here are some excerpts from Mr. Tritle's article:

"Tomorrow is a pregnant, magic word to those of us who know how far the world is from being finished.

"In salesroom and office, just as in the research laboratory, countless ideas are lying around waiting to be seized, developed, and profitably used. In the twin teamwork of discovery and salesmanship lies the potent promise of Tomorrow.

"Even if the world had come to a standstill—which it hasn't—even if tireless research workers were not constantly opening new worlds, the hopes and future of youth would be assured by the ceaseless obsolescence of men.

"In drawing the parallel between the past and the present, however, I want to make it clear that I am not one of those who are waiting for *one single thing* to come along and push us over the top—as once the automobile did in less trying times.

"The nation is so vast and scattered today that never again, I believe, will any one development—even the much-talked-of advances in housing—be able to bring a return of prosperity.

"That prosperity must come through the combination of a vast number of less spectacular but none the less important developments, representing the combined initiative of many people.

"This inevitably means a closer union between selling and creative production in all business. It means grasping every close-at-hand idea and developing it into something new and useful that people want and will buy.

"In my opinion it is inevitable that there will be developed such a plan to maintain a balance between production and consumption, and thus prevent unemployment.

"Every young man, however bewildering the present may seem, can gain today his foothold on Tomorrow. Just what are his possibilities, and where will he find them?

"First of all, he'll find them, not by waiting around for something big to turn up, but rather by keeping alert for simple and obvious ideas at his elbow.

"It is the imaginative army of why-notters that moves the world forward. Thank heaven there are so many of them!

"But to be a why-notter requires something more than a question-mark mind. It demands fearless encounter with the new and untried. None of those who are achieving things today in science or salesmanship are doing so without making mistakes.

"Always the world looks to its young men for a fresh supply of why-notters. Curiously, the daring ones of yesterday turn out to be the drags and skeptics of today.

"Above all, the young man who would seize tomorrow's rich possibilities must learn to sell—not only his ideas, but himself.

"In the future of science lies the future of all of us. Not only in the extent to which we benefit by its developments, but in the channels of increased business in all lines which it opens up to us.

* * *

Poet's Corner

BEN ALLEN, G. E. southern representative, gives a bit of sage advice to doorbell-ringing cold canvassers in the following verses:

Have you ever noticed, somehow, when
you're sitting all alone
You recognize a difference in a door
bell's ringing tone?
If a friend has pushed the button, how
eagerly you start
To open wide the portal to your home
and to your heart.
For you sense that very moment a
difference in the sound
That fills the house with music from
the attic to the ground.

But, if perchance, a beggar seeks admittance at your door
You hesitate to answer, for his ring
has told you more
Than his spoken word can tell you of
his sad and helpless plight;
An admission of his failure with no
courage left to fight.

A messenger with joyous news conveys, each time he rings,
A cheerful happy accent like the
message that he brings.
But when he brings you tidings that
are filled with grief and tears,
His ring arouses sorrow ere his words
can reach your ears.

Now and then a youngster, with his
boyhood pals at play,
Perhaps will ring the doorbell and
quickly run away.
And again the tone is different, filled
with carefree reckless joy,
And memory brings back the days
when you were just a boy.
And heedless, then, of all the things
that fate might have in store.
You lived each day for what it brought
and never looked for more.

If you would gain admission to a
home without delay
You must learn to push the button in
a friendly sort of way.
For whatever be the tidings one can
very quickly tell
By listening to the ringing of that all
revealing bell.

We mean BUSINESS

. . . and our dealers are going to get it!

SPRING SHOWING

Westinghouse *Dual-automatic Refrigerators*

Here's one of the most concerted drives for refrigerator sales in history. We mean business, and we're *going the limit* to see to it that Westinghouse dealers *get* business!

1933 is going to be a Westinghouse year. Spring Showing is just one of the many similar merchandising campaigns planned. These plans, together with the lifetime quality, extra dependability and convenience refinements of the Westinghouse HERMETICALLY-SEALED, Dual-automatic Refrigerator give Westinghouse dealers a golden opportunity. Popular prices and Westinghouse financing arrangements climax the franchise. ONE LINE, *complete* . . . ONE QUALITY, *the best*, convincingly proves that it's an extravagance to pay more, a gamble to pay less.

There's still time to cash in on the extra profit opportunities offered by the Westinghouse franchise this year. *But act quickly*. Write, wire or mail the coupon for detailed information *now!* Westinghouse Electric & Mfg. Co., Refrigeration Div., Mansfield, O.

1 Complete Spring Showing Selling Plan for every Westinghouse Dealer. Contains detailed information for staging Spring Showing . . . catalog of all material . . . dramatic floor demonstration . . . suggestions for local publicity and special events.

2 Powerful magazine advertising in 7 leading publications will invite everyone to Spring Showing at dealer showrooms.

3 Dominant campaign in newspapers throughout the country will localize magazine advertising and add impetus to Spring Showing.

4 Colorful, arresting posters on billboards everywhere carrying name and address of dealers will again invite prospects to the Spring Showing.

5 Compelling direct mail, handout folders, printed invitations will carry Spring Showing details to the home of every prospect.

6 Special window display and showroom decorations will make every Westinghouse dealer's store Refrigeration Headquarters during Spring Showing.

7 Radio announcements and invitations over an elaborate coast to coast network will broadcast news of the Spring Showing.

GET COMPLETE WESTINGHOUSE FRANCHISE DETAILS TODAY

Westinghouse

Westinghouse Electric & Mfg. Co.,
Refrigeration Division, E. R. N. 3-22
Mansfield, Ohio

We mean business, too. Please send Westinghouse franchise facts.

Name_____

Address_____

City_____ State _____

KELVINATOR LOWERS BASE PRICE TO $97

(Concluded from Page 1, Column 1)

of raw materials will be climbing, Mr. Mason points out that this would necessitate a price revision upward.

"If we have to pay more for materials — and we hope we shall, for that will mean better times for everybody—we shall have to advance our prices," declares Mr. Mason. "However, we have promised the public that there will be no such increase for the next 40 days, no matter what happens to material costs.

"There is hardly room for doubt that the predicated upturn in retail sales already has started. At the end of the 40-day period we are hopeful of finding that the buying movement, now so evident, will have extended into the materials field to such an extent that such prices will have advanced appreciably."

Fedders Announces Ice Cube Maker

(Concluded from Page 1, Column 5)

metal shield. Elimination of a dead air pocket between the door and the chromium-plated shield is effected by vent holes which provide for air circulation.

Cabinet of the ice maker occupies a floor space approximately 2 ft. square. For flooded or dry-expansion systems, the unit can be connected with an existing refrigeration line or installed with a compressor already in use.

It is available with a Fedders automatic expansion valve for single installation, or with a thermostatic valve where multiple installations are used.

Happy Housewife

Mrs. H. D. Finnigan of Covington, Ky., was the first woman in the world to have installed in her home a 1933 Crosley refrigerator with the "Shelvador." J. O. Tibbs (above right) made the sale.

You'll *deliver* more and *make* more with ICE-O-MATIC in 1933

ICE-O-MATIC dealers meet 1933 with the only kind of merchandise that a merchant can really make money on in the present market.

Hasn't the public been misjudged in the past by those who assume that it wants cheap merchandise? Those of the public who are ready and willing to buy, are actually demanding *better* goods than ever before—at *lower* prices, to be sure—but not at the "vanishing-point" prices that have so demoralized business recently.

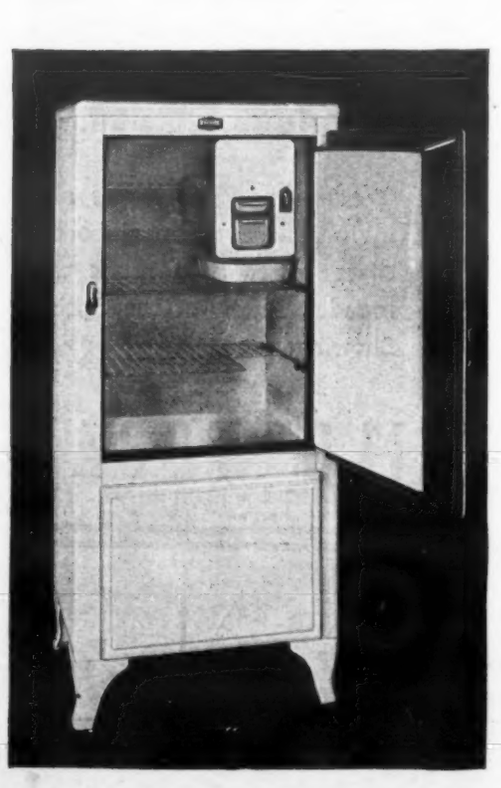
That's precisely what Ice-O-Matic offers for 1933! Three distinct lines of finer Refrigerators—of which typical models are shown. The "Y" line, the "L and P" line and the big, de luxe "D" line, enable you to meet every domestic need, offering top value for every dollar the prospect can spend, and in every case you are selling a refrigerator you can fearlessly recommend, and one that pays you a real profit.

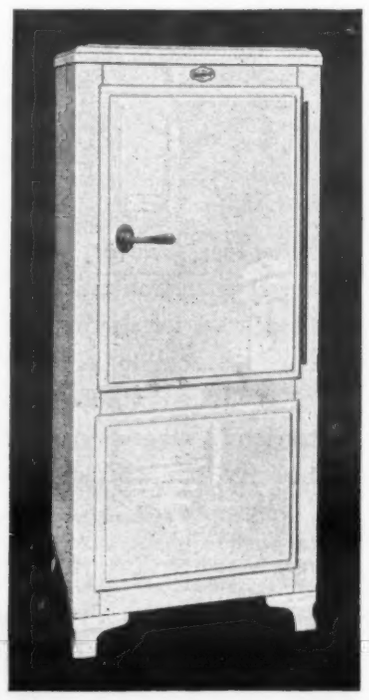
You'll *deliver* more, and *make* more, with Ice-O-Matic in 1933. Send the coupon for franchise details.

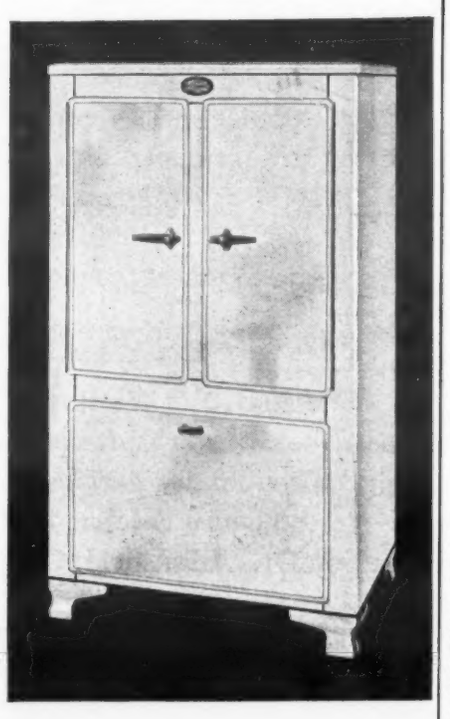
Ice-O-Matic Refrigeration Division

Williams Oil-O-Matic Heating Corporation • • Bloomington, Illinois

WILLIAMS ICE-O-MATIC REFRIGERATION







WILLIAMS OIL-O-MATIC HEATING CORP. E. D.
Ice-O-Matic Division, Bloomington, Ill.
Please send me full details of the 1933 Ice-O-Matic Line and Franchise.

Name.....

Address.....

City.....*State*.....

Present Business.....

WILLIAMS IS NAMED MAJESTIC MANAGER

(Concluded from Page 1, Column 3)

works manager, succeeding R. C. Rolfing.

"Mr. Williams has been with us since 1929 as my assistant and as company counsel in the long legal battle with the radio combine which was concluded last Fall," Mr. Grigsby stated in commenting upon the appointment of the new vice president.

Mr. Williams has had previous experience in conducting factory operations as assistant to Henry M. Leland, at the time president of Cadillac Motor Car Co., and later in organizing and operating the Lincoln Motor Car Co.

Following Mr. Grigsby's introduction at the meeting of field men, Mr. Williams outlined some of the results which he hopes to accomplish and spoke of the benefits which he expects will be derived from a unified and concerted effort by all departments of the company in the new set-up.

Fit to New Policy

The main purpose of the week-long sales school and general conference of all factory field men, according to assistant general sales manager Harry Alter, who presided at most of the sessions, was to fit the sales organization set-up to the new company policy of coordinating the manufacture and sale of all products under one general executive control.

"In the past," Mr. Alter stated, "we have had a radio division and a refrigeration division, wtih a corps of field men operating in both divisions and—to a sense at least—competing with each other. Henceforth, there is to be no such division of effort. All factory representatives will represent all Majestic products.

Study All Products

"Consequently, the radio men had to study refrigeration and the refrigeration men had to study radio, auto radio, and tubes. All of them had to become familiar with new plans and policies formulated for the operation of the unified sales activities."

In a leisurely and thorough-going manner each subject was presented and studied. Skilled department executives were assigned the specific task of drilling the men on the product or procedure concerned. One after another Majestic refrigerators, radios, automobile radois, and tubes were minutely described from the standpoint of design, manufacture, distribution, and service.

Acting on the assumption that many points which any salesman already know should be known much better, no limit was placed on the length of time to be devoted to each subject—either in initial presentation or later discussion.

The greater part of two days was consumed in presenting and discussing new sales direction routines, this part of the meeting being under the direction of Charles R. Klopp, field sales manager.

Change in Policy

"One reason so much time was devoted to this subject," explained Mr. Klopp, "is the change in policy with regard to the operation of the field force.

"Henceforth, the ability of Majestic field men will be measured more in terms of sales *for* dealers than sales *to* distributors, based on the simple conclusion that if the dealer sells he will buy, and if the dealer buys, the distributor will buy also.

"We are putting our field men in the front line trenches. Consequently, they have to be exceptionally well equipped. They have to know how to meet any resistances the dealers may have, and to help the dealers to present the merchandise in such a manner that every question in the prospect's mind will be intelligently answered.

"In order to make sure that dealers do not overlook any 'bets' every field man will be equipped with data on territorial possibilities based upon the dealers' past practice and other factors."

Study Advertising

Considerable time was devoted to the subject of advertising and sales promotion in order that the field men might be completely posted on every item available. This part of the meeting was in charge of Earl L. Hadley, advertising manager, who addressed the men on general policy and emphasized the important position which advertising should occupy in their daily contacts with dealers.

C. C. DeWees, assistant advertising manager, and A. R. Johnson, sales promotion manager, discussed each piece of material individually.

Stockholders Meet

CHICAGO—The election of Le Roi J. Williams as a member of the board of directors and executive vice president and general manager, and of John F. Ditzell as assistant vice president and general sales manager, were two of the most important changes made in the directorate and executive offices by the stockholders of Grigsby-Grunow Co. in their recent annual meeting.

Other members of the board of directors are B. J. Grigsby, chairman; J. R. Cardwell, A. F. Mecklenburger, Sheldon Clark, C. L. Schmidt, and N. C. Mather.

Other officers of the company as elected at the meeting are B. J. Grigsby, president; H. E. Kranz, vice president in charge of engineering; M. D. Harrison, secretary and treasurer; G. W. Whitfield, assistant treasurer, and A. F. Mecklenburger, assistant secretary.

Ditzell Elected

CHICAGO—John F. Ditzell was named president of the Columbia Phonograph Co. (Grigsby-Grunow subsidiary) succeeding Herman E. Ward, at a recent meeting of the board of directors.

Le Roi J. Williams was elected vice president and M. D. Harrison secretary and treasurer. At the conclusion of the meeting Mr. Ditzell announced the appointment of E. B. Shiddell, who has been with Columbia Phonograph Co. for more than 24 years, as general manager.

Broadcasters Meet

CHICAGO—At a meeting of stockholders of Public Broadcasters, Inc., (subsidiary of Columbia Phonograph Co.) called for the election of new officers, John F. Ditzell was named president, Ray S. Erlandson, vice president and assistant secretary, and M. D. Harrison, secretary and treasurer.

At a special meeting of the stockholders John F. Ditzell, Le Roi J. Williams, Ray S. Erlandson, M. D. Harrison and Walter J. Gregory were elected as directors of the company.

BAGNALL, WICK TAKE OVER DETROIT COPELAND SALES

(Concluded from Page 1, Column 1)

branch in Detroit, while retail household sales in Detroit were handled by a separate organization.

Under the new arrangement, the Bagnall-Wick partnership will wholesale Copeland household refrigerators to all dealers in greater Detroit, but will operate the organization's salesroom on West Grand Blvd. as a retail outlet, according to Mr. Bagnall.

Wholesale distribution of household units in other parts of Michigan will now be handled from the Copeland factory at Mt. Clemens.

Copeland commercial units are now being distributed in Wayne and Oakland counties by the Sanders Butcher Supply Co.

R. H. Graham, formerly head of the Copeland Detroit factory branch, is now serving as Copeland's central states regional manager.

F. RILEY INTRODUCES NEW REFRIGERATION DEVICES

(Concluded from Page 1, Column 1)

pressor lubricants of Schliemann Companies.

Mr. Riley will also handle licensing arrangements on bellows shaft seals covered by patents of E. T. Williams; and licenses on a new type of steel evaporator, details of which have not yet been announced.

Commercial Credit Gets Norge Account

BALTIMORE, Md., March 18—Announcement was made here today of an exclusive financing contract between the Norge Corp., manufacturer of Norge refrigerators and Norge washing machines, and Commercial Credit Co. providing for a standard national finance service for the sale of Norge products.

KELVINATOR-BOHMAN CO. HOLDS SALES SCHOOL

HAGERSTOWN, Md.—First step in the 1933 educational program of the Kelvinator-Bohman Co., Kelvinator distributor here, was completed recently at the close of two schools held prior to the opening of the company's spring campaign.

MAJESTIC DEALERS IN WEST SEE NEW LINE

SAN DIEGO, Calif.—Dealers, prospective dealers, and retail prospects viewed the 1933 Majestic refrigeration line here March 2 when officials of the Thor Pacific Co., Los Angeles Majestic distributor, sponsored a showing of the new line at a local hotel.

Thor Pacific officials present at the exhibit were Lou Willis, sales manager; Jim Bouldin, advertising manager; Frank Wallace and Floyd Bittaker, field representatives.

WHICH do YOU sell? REFRIGERATORS... or REFRIGERATION?

There's a vast difference between the two. It's a "refrigerator" on your floor. But, in the owner's kitchen it *must* be "refrigeration."

And mark this! Whatever the cost to you, in service, the customer *demands refrigeration.*

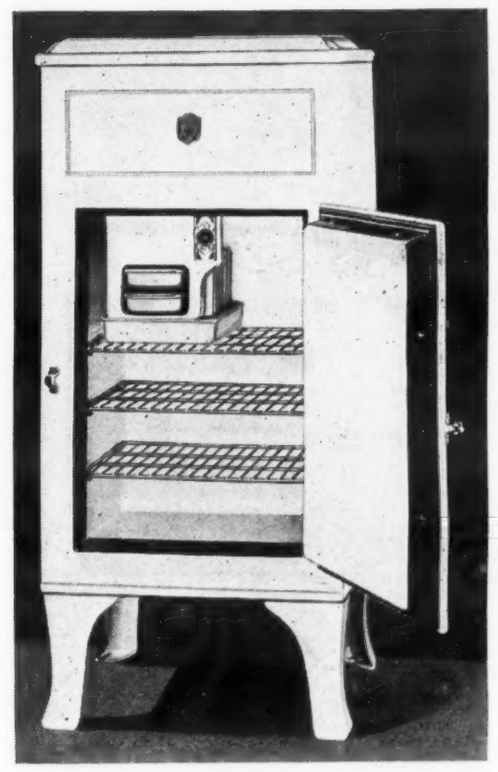
It is quite apparent, then, that every dealer has this choice: He can sell refrigerators—and take his chances on breaking even on service. Or he can sell *refrigeration*—which *gives* service and does not *require* service.

He has many refrigerators to select from. But there is only one *Electro-Sealed Refrigeration* and it bears the name "Majestic"—a synonym for trouble-free performance in 3½ million homes.

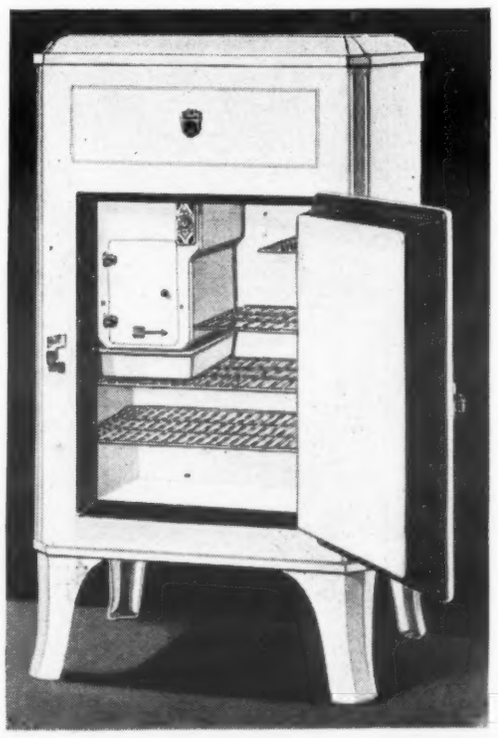
Which would you rather sell—refrigerators—or refrigeration? There's profit in both, perhaps. But for profits that are safe from service costs you will choose Majestic Electro-Sealed Refrigeration—and be safe from service *calls.* The back room of your store need not be a miniature factory.

GRIGSBY-GRUNOW COMPANY, CHICAGO, and affiliates, with factories at Chicago; Toronto; Bridgeport; Oakland; London, England; Sao Paulo, Brazil

Manufacturers also of MAJESTIC RADIOS

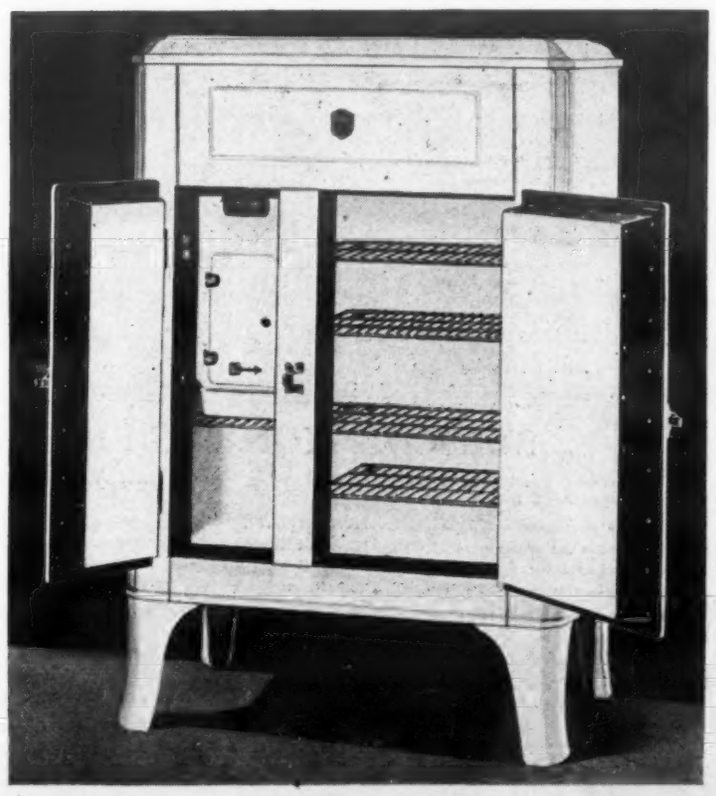


DE LUXE MODEL 500 (Electro-Sealed) — Food storage area, 9.68 sq. ft. Exterior dimensions: Height, 54¾ in.; width, 24⅛ in.; depth, 20⅝ in.; depth overall, 25 11/16 in. Two ice trays — 42 ice cubes—4 pounds of ice per freezing. "Isolator wall" cabinet construction. "Stay-Kold" Defroster Chromium plated hardware. Cabinet finish: Exterior, Elasto; interior, Acid-resisting Porcelain, with rounded corners.



DE LUXE MODEL 700 (Electro-Sealed) — Food storage area, 13.05 sq. ft. Exterior dimensions: Height, 55⅜ in.; width, 30⅜ in.; depth, 23 7/16 in.; depth overall, 27 11/16 in. Four ice trays — 34 ice cubes—3 pounds of ice. Fast freeze tray. "Stay-Kold" Defroster. "Isolator wall" cabinet construction. Chromium plated hardware. Cabinet exterior, Elasto; interior, Acid-resisting Porcelain, rounded corners.

DE LUXE MODEL NO. 900 (Electro-Sealed)—Food storage area, 16.4 sq. ft. Exterior dimensions: Height, 58¾ in.; width, 38¾ in.; depth, 23 7/16 in.; depth overall, 27 9/16 in. Five ice trays—105 ice cubes—10 pounds of ice. Fast freeze tray. "Stay-Kold" Defroster. "Isolator wall" cabinet construction. Chromium plated hardware. Cabinet exterior, Elasto; interior, Acid-resisting Porcelain, rounded corners.



Majestic

ELECTRO-SEALED

REFRIGERATION

COPELAND LAUNCHES SERIES OF MEETINGS

MT. CLEMENS, Mich., March 21—W. D. McElhinny, vice president in charge of sales of Copeland Products, Inc., is in Newark today conducting the fourth of a series of Copeland dealer meetings to be held in key cities of the United States during March and April.

Today's meeting is being held at headquarters of Essex Distributing Corp., Copeland distributor.

First of the dealer conventions was held March 9 at the Southern hotel in Columbus, under the auspices of the Good Housekeeping Shop Co., Copeland distributor in that area. Seventy-five Copeland dealers and 12 prospective dealers attended, according to Mr. McElhinny.

The second convention was held March 15 at Bigelow & Dowse Co., Boston distributor.

Dealers in the Springfield (Mass.) territory attended a meeting conducted there March 16 at a branch of Bigelow & Dowse Co. there.

Remainder of Mr. McElhinny's dealer meeting schedule, including distributorships at which the sessions will be held, is as follows:

March 22, New York City, New York City branch; March 24, Philadelphia, Elliott Lewis Electrical Co.; March 28, Rochester, N. Y., Ray M. Smith & Co.; March 30, Albany, Albany Distributing Co.; April 4, St. Louis, Artophone Corp.; April 5, Kansas City, Copeland Refrigeration Co.; April 10, Cincinnati, A. L. Fink Electric Co.; April 12, Cleveland, Frankelite Co.; April 14, Charleston, W. Va., McKee Music Co.; April 20, Minneapolis, Geo. A. Clark & Son; April 26, Monroe, La., Monroe Furniture Co.; April 28, New Orleans, Edw. N. Eberling Co.

Dates of Copeland dealer conventions to be held at Omaha; Lincoln, Nebr.; Wichita, Kan.; Denver; and in Oklahoma, Texas, and the Pacific Coast area will be announced later, Mr. McElhinny states.

Pratt Joins Randall Agency in Detroit

DETROIT—Louis A. Pratt has become associated with Fred M. Randall Co., advertising agency of this city, as vice president and account executive, according to announcement issued from that agency.

HOLMAN HEADS LATHAM APARTMENT DIVISION

NEW YORK CITY—T. R. Holman has been appointed manager of apartment house refrigeration sales by E. B. Latham & Co., Leonard distributor here.

AIR CONDITIONING IN CHINA

WASHINGTON, D. C.—China will soon have its first air-conditioned train, according to the Hong Kong office of the U. S. Department of Commerce. An ice-cooling system is being installed on the Canton-Kowloon express train.

16,351 Household Electric Refrigerators Sold in January, By 12 Manufacturers

Reported by Refrigeration Division of National Electrical Manufacturers Association. Member companies: Copeland, Crosley, Frigidaire, General Electric, Gibson, Grigsby-Grunow, Kelvinator, Norge, Servel, Trupar, Universal Cooler, and Westinghouse.

	World Sales		U. S. A. INVENTORIES			
			Factory, Branch, and Warehouse		Dealers and Distributors	
HOUSEHOLD	Quantity	Dollars	Quantity	Dollars	Quantity	Dollars
Lacquer (Ext.) Cabinets with Systems						
1. Under 4.00 cubic feet	150	8,328	1,542	81,182	1,102	65,748
2. 4 to 4.99 cubic feet	4,217	279,952	21,736	1,544,889	15,308	1,117,570
3. 5 to 5.99 cubic feet	1,291	98,423	9,770	735,081	6,838	558,473
4. 6 to 6.99 cubic feet	3,307	293,000	23,520	2,559,083	11,783	1,189,048
5. 7 to 7.99 cubic feet	1,129	82,439	7,157	629,492	3,587	357,890
6. 8 to 8.99 cubic feet	294	36,510	3,616	589,319	2,321	337,121
7. 10 to 12.99 cubic feet	34	7,402	2,084	418,748	628	127,382
8. 13 to 16.99 cubic feet	1	217	460	113,251	117	29,031
9. 17 to 24.00 cubic feet	.....	.....	252	72,532	81	23,914
10. Total Lacquer	**10,423**	**806,771**	**70,137**	**6,744,077**	**41,765**	**3,806,177**
Porcelain (Ext.) Cabinets with Systems						
11 Under 4.00 cubic feet	109	8,239	930	57,416	506	29,376
12. 4 to 4.99 cubic feet	902	75,199	5,423	436,078	2,903	217,166
13. 5 to 5.99 cubic feet	917	88,323	3,110	275,474	2,979	287,765
14. 6 to 6.99 cubic feet	1,468	158,962	5,485	626,065	2,905	324,416
15. 7 to 7.99 cubic feet	1,265	150,467	2,439	300,312	2,925	373,549
16. 8 to 9.99 cubic feet	556	90,539	1,087	185,247	2,069	339,706
17. 10 to 12.99 cubic feet	120	21,472	1,995	358,608	905	184,454
17. 13 to 16.99 cubic feet	44	9,695	2,567	544,319	398	88,627
19. 17 to 24.00 cubic feet	17	5,081	1,245	365,048	248	74,100
20. Total Porcelain	**5,398**	**608,477**	**24,281**	**3,148,567**	**15,838**	**1,919,159**
21. Total Lines 10 and 20	**15,821**	**1,415,248**	**94,418**	**9,892,644**	**57,603**	**5,725,336**
22. Separate Systems	127	8,269	5,887	348,736	175	6,562
23. Separate Household Low Sides	403	6,595	3,351	58,753	960	19,138
24. Total Lines 21, 22, and 23	**16,351**	.....	**103,656**	.....	**58,738**	.....
25. High Sides Under 1/3 hp	500	20,914	4,884	196,270	487	24,066
26. Cabinets—No Systems	194	12,112	46,888	1,803,635	172	18,886
27.						
28. Totals Household	.....	**1,463,138**	.....	**12,300,038**	.....	**5,793,988**
COMMERCIAL						
31. Water Coolers with High Sides	415	38,115	11,300	1,227,392	3,074	339,188
32. Water Coolers with No High Sides	59	3,210	1,899	93,288	167	7,914
33. Ice Cream Cabinets with High Sides	67	8,562	2,232	280,645	121	14,257
34. Ice Cream Cabinets with No High Sides	124	14,346	3,899	452,449	248	26,798
35. Milk Coolers with No High Sides	.....	.....	8	1,503	60	10,181
36. Room Coolers with High Sides	.....	.....	3	1,568	1	523
37. Room Coolers with No High Sides	17	1,642	2,756	249,897	215	21,009
38. Extra High Sides, 1/3 hp. and Up	1,620	175,595	11,528	1,347,255	3,080	386,265
39. Total Lines 31, 33, 36, and 38	**2,102**	.....	**25,063**	.....	**6,276**	.....
40. Extra Commercial Low Sides	2,969	79,182	15,171	459,577	4,653	151,594
41. Miscellaneous Cases and Cabinets	.....	4,861	.....	328,215	.....	130,437
42.						
43. Totals Commercial	.....	**325,513**	.....	**4,441,789**	.....	**1,088,166**
44. Totals—Household and Commercial	.....	**1,788,651**	.....	***16,846,827**	.....	****6,882,154**

*The total of the figures by sizes and kinds does not agree with the total figure shown, namely $16,846,827, because of the failure to supply the detailed information by all companies.
The number of companies reporting inventories at factory, branches, and warehouses was 10. The percentage of total sales of these 10 companies was 97.3.
**The number of companies reporting inventories of dealers and distributors was 9. The percentage of total sales of these 9 companies was 93.7.

SAN DIEGO BUREAU USES NEWSPAPER ADVERTISING

SAN DIEGO, Calif.—Members of the San Diego County Electric Refrigeration Bureau are cooperating this month in two newspaper advertising projects to promote sales of refrigerators in this area, according to J. Clark Chamberlain, secretary-manager of the bureau here.

On March 12, bureau members used six full pages in a San Diego paper to advertise their products. Printed in color, the first page of the spread was devoted to pictures and general refrigeration news.

Last page carried an official bureau advertisement discussing the economy of electric refrigeration. Other pages contained advertisements of individual retail organizations and the lines handled by them.

Sales by States for January, 1933

STATES and Territories	Quantity of HOUSEHOLD Low Sides
Connecticut	284
Maine	41
Massachusetts	842
New Hampshire	86
Rhode Island	142
Vermont	40
New England Total	**1,435**
Delaware	39
Maryland & D. C.	577
New Jersey	643
New York (State)	3,687
Pennsylvania	1,129
Eastern Total	**6,075**
Kentucky	145
Ohio	697
West Virginia	223
East Central Total	**1,065**
Alabama	86
Florida	149
Georgia	125
North Carolina	131
South Carolina	94
Tennessee	163
Virginia	181
Southeastern Total	**929**
Illinois	999
Indiana	344
Michigan	283
Wisconsin	237
Great Lakes Total	**1,863**
Minnesota	139
North Dakota	22
South Dakota	10
North Central Total	**171**
Iowa	276
Kansas	200
Missouri	526
Nebraska	111
Middle West Total	**1,113**
Arizona	78
California	732
Nevada	7
Pacific Coast Total	**817**
Idaho	46
Montana	14
Oregon	153
Utah	5
Washington	73
Northwestern Total	**291**
Colorado	372
New Mexico	60
Wyoming	5
Rocky Mountain Total	**437**
Arkansas	115
Louisiana	134
Mississippi	33
Oklahoma	77
Texas	449
Southwestern Total	**808**
Total United States	**15,004**
Total Canada	181
Other Foreign (Including U. S. Possessions)	1,026
Total for World	**16,211**

Portland Electrolux Branch Moves

PORTLAND, Ore.—The Portland branch of Electrolux, Inc., distributor of electric and gas appliances, has moved into new and larger quarters in the Terminal Sales building. E. Groth, who joined Electrolux as a salesman in Chicago seven years ago, is manager of the branch.

SAYLOR, LAYPORT NAMED TO STAFF AT KELVINATOR

DETROIT—Two men have been appointed to the sales promotion organization of Kelvinator Corp., according to Vance C. Woodcox, director of advertising and sales promotion.

W. E. Saylor, who will have charge of merchandising sales promotion materials, handled similar work for both Frigidaire Corp. and the Faraday Refrigerator Corp., having served the latter organization as advertising manager.

Edward T. Layport, who will devote himself to commercial sales promotion, formerly was in charge of the copy and production section of the sales promotion division of Frigidaire Corp.

FOUR TRUCKS DEMONSTRATE BOHN REFRIGERATORS

ATLANTA, Ga.—Four demonstration trucks, fitted out with various models of Bohn refrigerators, are bringing the 1933 Bohn line of ice refrigerators to the door of the ice dealer throughout the South.

Bohn Co. officials believe that ice dealers will get a better picture of the general construction and retail selling features of the refrigerators by actually seeing them, than they would through catalogs or photographs.

Arrangements are also being made to have the dealers make appointments with immediate prospects, so that the "showroom" can be brought right to the prospect's door.

LANG SAYS TRUTH IS BEST IN ADVERTISING

CHICAGO—It is decidedly bad judgment to make exaggerated statements in advertising copy when the truth would be just as convincing, and much less dangerous, said Chester Lang, director of publicity for the General Electric Co., when he addressed the Chicago Advertising Council March 9.

Advertisers should never make unnecessary claims for their products, and they should never expect any advertising to do the entire selling job. "It is part of a complete plan of doing business—not intended to carry the whole load," he said.

LITKA SELLS LEONARD TO ICE COMPANY HEAD

CHICAGO—Frank Litka, salesman for the L. & K. Auto and Radio Supply Co., Leonard refrigerator dealer for L. C. Wiswell Co., distributor here, recently sold a Leonard electric refrigerator to A. Diez, president of the Diez Brothers Ice Co. of this city.

Another of his recent sales was to a one-armed housewife. To her, he stressed the convenience of the Len-A-Dor feature.

BOOKS

"A SUMMARY OF THE UNITED STATES CENSUS OF 1930 FOR ALL CITIES OF 100,000 AND MORE"

Publisher: E. Katz Special Advertising Agency, New York City. Pages: 37. Date of publication: 1932.

SALES and advertising managers—all, in fact, who are interested in merchandising and advertising—will find a wealth of information on the habits and conditions of the American public when they read "A Summary of the United States Census of 1930 for all Cities of 100,000 and More" which has just been issued by the E. Katz Special Advertising Agency of New York City.

The publishers have gathered from the Census Bureau's hundreds of scattered bulletins and reports facts on this group of large cities.

To increase its utility, the book has been made to include figures on income tax returns, electric subscribers, and home telephones in use, although these data were not included in the 1930 census.

Part 1 of the book includes an alphabetical list of the 93 cities of 100,000 or more in the United States, together with the counties in which they are located, and their rank in size.

Table No. 1 of the first part lists the cities in order of their size, gives the total population of each, its white population, the whites' percentage of total population, the city's negro population, total number of families, and the average number of persons per family.

Family Statistics

Second table lists the number of homes in each city, number of families owning their own homes, the percentage of home owners as against the entime number of families in the city, and the number of tenant families.

Table No. 3, dealing with "homes by value and rental," again lists the number of homes in each city, then divides the number of owned homes into four valuation groups and four monthly rental divisions.

Next table gives the number of families in each of the 93 cities, number of families with radio sets, this group's percentage of the total number of families, number of residence telephones per 100 families, homes receiving electric service, number of income tax returns, and the income tax ratio.

In the fifth table are figures showing total retail sales in each city in 1930, per capita retail sales, total sales by food retailers, automotive retailers, and drug stores, and total wholesale sales for 1930.

Part 2 of the book is a reorganization of the foregoing material into five regional groups: Northeastern, North Central, Southern, Midwestern, and Far Western cities.

Geographical Division

No new data are included in this section. It has simply been divided geographically for the convenience of those who wish to consult the census for one sectional group of cities without being confused by data on cities with which they are not concerned.

Several of the publishers' comments on the compilations should not be overlooked. Some of them are:

"In only 21 of the 93 cities listed are 50 per cent or more of the homes owned by the families which occupy them . . . Home ownership suggests permanence of residence, some degree of financial stability, and an attitude of mind favorable to acquisition of consumer goods for household needs. New York City is an exception.

"A family paying $50 a month for rent should have an annual income of at least $2,400."

The book's republication of a Census Bureau statement is worth noting: "It should be emphasized that the per capita sales figure for a city constitutes a measure of the attraction of such cities as a retail trading center, rather than a measure of the buying power of the inhabitants."

"Thus," says the book in interpreting this statement, "a high per capita retail sales figure does not necessarily mean that the people of one city are richer or spend more money than the people of another city with a lower per capita retail sales figure."

ADVERTISES USE OF TRUCKS FOR ICE HAULING

CHICAGO—Current advertising of the International Harvester Co. features the fact that 222 International trucks are now being used by San Francisco's Union Ice Co. for hauling ice from its 80 plants to the 200 California and Nevada cities served by it.

A part of these trucks are electrically refrigerated, and are used for hauling wrapped and trademarked ice to vending machines where 25-lb. cakes may be purchased from the coin machine, which is also electrically refrigerated.

COMBINATION SUBSCRIPTION RATES

How to save money on your subscription order

NO.	PUBLICATIONS	YOU PAY	YOU SAVE
1	Electric Refrigeration News (1 Year) and Refrigeration Directory and Market Data Book*	$3.50	$ .50
2	Electric Refrigeration News (2 Years) and Refrigeration Directory and Market Data Book*	$5.50	$1.50
3	Refrigerated Food News (1 Year) and Refrigeration Directory and Market Data Book*	$1.50	$ .50
4	Refrigerated Food News (1 Year) and Electric Refrigeration News (1 Year)	$3.50	$ .50
5	Refrigeration Directory and Market Data Book* and Electric Refrigeration News (1 Year) and Refrigerated Food News (1 Year)	$4.00	$1.00
6	Refrigeration Directory and Market Data Book* and Electric Refrigeration News (17 Weeks)	$1.50	$ .50

Order by number. Use coupon below. These rates for U. S. only.
October, 1932, edition with Supplement, 590 pages, paper covers.

Group Order Rates for U. S. and Foreign Countries

PUBLICATIONS	NUMBER	UNITED STATES*	CANADA†	ALL OTHER COUNTRIES
Electric Refrigeration News	1 subscription	$3.00	$6.00	$5.00
	5 or more, each	2.75	5.75	4.75
	10 or more, each	2.50	5.50	4.50
	20 or more, each	2.25	5.25	4.25
	50 or more, each	2.00	5.00	4.00
Refrigerated Food News	1 subscription	$1.00	$2.00	$2.00
	5 or more, each	.95	1.95	1.95
	10 or more, each	.90	1.90	1.90
	20 or more, each	.85	1.85	1.85
	50 or more, each	.80	1.80	1.80
BOTH PAPERS	1 subscription	$3.50	$7.00	$6.00
	5 or more, each	3.25	6.75	5.75
	10 or more, each	3.00	6.50	5.50
	20 or more, each	2.75	6.25	5.25
	50 or more, each	2.50	6.00	5.00

*U. S. and Possessions and Pan-American Postal Union Countries.
†High rates for Canada are due to Canadian tariff of 5c per copy.

SUBSCRIPTION ORDER

BUSINESS NEWS PUBLISHING CO., ...1932
550 Maccabees Bldg., Detroit, Mich.

☐ Enclosed is remittance for $.....
☐ Please enter my order for COMBINATION OFFER NO..... at $.....
☐ Enter subscription to Electric Refrigeration News ☐ 1 Year $3.00. ☐ 2 years $5.00.
☐ Enter subscription to Refrigerated Food News ☐ 1 Year $1.00. ☐ 2 Years $1.50.
☐ Send Refrigeration Directory and Market Data Book including Supplement. $1.00 per copy.

Name .....
Address .....
City ..... State.....

ERN-3-22-33

UTILITY TO REWARD LEADING SALESMEN

NEW ORLEANS—At a meeting of the local Electric Refrigeration Bureau held recently, 120 distributors, dealers, salesmen, and utility men laid plans for a campaign designed to speed sales of electric refrigerators in the New Orleans area during April and May.

Officials of New Orleans Public Service, Inc., announced that their company will pay a bonus to all salesmen connected with the bureau for sales made during the spring drive.

Setting 300 points as a minimum quota, the utility will pay salesmen $1 per point for the fourth hundred points, $1.50 per point for the fifth hundred points, $2 per point for the sixth hundred points, and $3 per point for all points in excess of 600.

Customers to Get Prizes

New Orleans refrigerator distributors will give $1,500 to the New Orleans Food Preservation Association for the purpose of awarding six refrigerators to customers buying units during the contest period.

If any winner selected has purchased a refrigerator for less than $250, the refrigerator's purchase price will be refunded. If the price has exceeded $250, he will be given a credit memorandum for $250 to apply on the refrigerator purchased.

Cold Cookery Meetings

Home service department of the local utility company will conduct 11 cold cookery meetings during the campaign. Each session will feature a different make of electric refrigerator, and the distributor for that make will have a part on the program.

The local Electrical League has secured use of a new residence from a local real estate organization, and during the campaign will have it completely equipped with electrical appliances. In the basement will be a display of electric refrigerators. Although sponsored by the league, the project will be in the immediate charge of the home service department of the local utility.

MEREDITH, RAVITT JOIN STEWART-WARNER STAFF

CHICAGO—Charles E. Meredith and Leo Ravitt have been appointed district representatives of Stewart-Warner Corp.'s refrigeration division, according to W. J. Zucker, vice president and general sales manager of the company.

Mr. Meredith, formerly with San Francisco's Hot-N-Kold Corp. and Westinghouse Electric & Mfg. Co., will be in charge of Pacific coast refrigeration activities, and will cover the states of California, Washington, Oregon, Utah, and Idaho. His headquarters will be in San Francisco.

Texas, Louisiana, Oklahoma, Arkansas, and Mississippi will comprise the territory of Mr. Ravitt, whose headquarters will be in Dallas, Tex.

6 New Members Added To San Diego Bureau

SAN DIEGO, Calif.—Six electric refrigeration dealers and distributors in this area have been added to the membership of the San Diego County Electric Refrigeration Bureau, according to J. Clark Chamberlain, the bureau's secretary-manager.

They are: Leo J. Meyberg Co., Los Angeles Norge distributor; Klicka Lumber Co., new San Diego Crosley dealer; Lyon Radio Co., Norge and Sparton dealer in San Diego; Watson & Wilson, Inc., Los Angeles Grunow distributor; La Jolla Plumbing Co., Westinghouse dealer in Los Angeles; and the A.B. Appliance Co., San Diego Sparton and Kelvinator dealer.

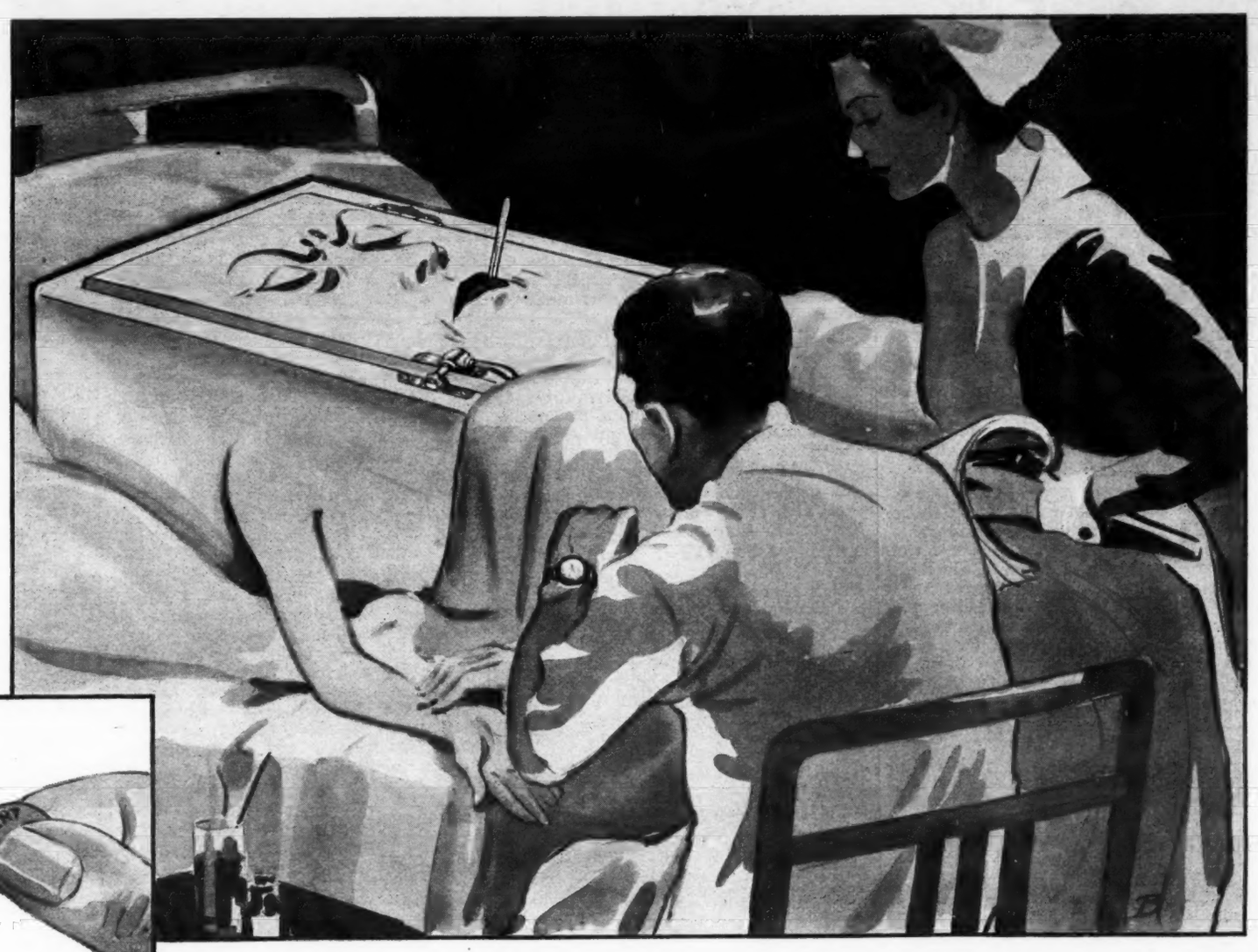
Buhl Sons Suggests Sales Helps

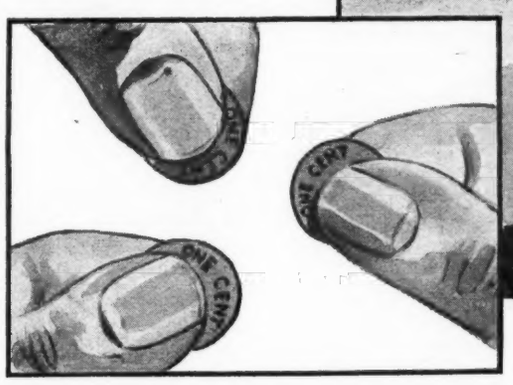
DETROIT—In an attempt to keep his dealers' sales efforts in tune with the times, W. B. Muse of Buhl Sons Co., Leonard distributor here, has bulletinized all retailers in his territory, urging them to use the phrase, "No legal holiday can interrupt its service" in their sales talks and advertising on electric refrigerators.

Mr. Muse asks that all dealers present electric refrigeration as a "savings account," requiring an initial deposit of $10, and $8 to $15 per month until the unit is paid for.

BINDER EXHIBITS COPELAND LINE AT FOOD SHOW

TRENTON, N. J.—Binder Electrical Supply Co., Copeland distributor here, had a display of household units and commercial equipment at Trenton's annual Better Homes and Food Show, according to Benjamin Binder, president of the distributing company.





PINCHOCOCCI—The Virulent Germ of Insulaitis. (Not at all magnified)

Beware the Ides of March There's Insulaitis Abroad!

Like the common cold, Insulaitis takes its annual toll unpunished, is accepted in the best society, and frequently is ignored as only a trifling ailment.

But Insulaitis has been diagnosed as a serious chronic disease that causes no end of trouble and frequent failure of the entire system. And yet so little attention has been paid to it, though its symptoms are plain and its prevention simple.

Insulaitis is what often happens to the insulation of a refrigerator upon leaving home and beginning work for someone else. It is caused by the dampness which is always present inside the walls of mechanical refrigerators in operation. That's the insidious thing about Insulaitis. It always occurs within the walls of the refrigerator, out of sight, and always in someone else's kitchen. Its results often are fatal—in every case bringing on a state of permanent anemia and loss of vitality. Its symptoms are a rising temperature and increased consumption.

There was an epidemic of Insulaitis among many makes of refrigerators. But, fortunately, science has developed and proved a simple remedy, administered to the refrigerator in the form of an inoculation of Dry-Zero insulation at birth. This has proved an effective anti-toxin for many of the most efficient refrigerators on the market.

Dry-Zero, among all commercial insulants, is uniquely immune to the ravages of this malady. It is composed of fibres which are highly resistant to moisture. Thus, Dry-Zero is comparatively unaffected by the water vapor that gets into **every** cabinet wall, in spite of "moisture seals," due to the difference between the box and room temperatures. This quality assures continued high efficiency operation for the life of the refrigerator insulated with Dry-Zero.

Furthermore, Dry-Zero has the highest rating of any commercial insulant. It is accepted by the industry as the standard of insulation efficiency. Though it costs more than any other insulant, it gives a far greater increase in efficient, dependable, permanent service. Even so, the additional material cost of Dry-Zero in a cabinet as compared to the cheapest temporary substitute is but three to six cents per inside cubic foot of food capacity.

If your refrigerator is insulated with Dry-Zero, you can be confident that it will never have any of the serious functional difficulties that are brought about by Insulaitis.

Dry-Zero Corporation, Merchandise Mart, Chicago. Canadian Office: 687 Broadview, Toronto, Ontario.

THE MOST EFFICIENT COMMERCIAL INSULANT KNOWN **DRY·ZERO**

An Editor on Wheels

Stories of Interesting PLACES in the Refrigeration Industry

By **GEORGE F. TAUBENECK**

Cleveland, Ohio

Moses Cleaveland laid out the public square of what later became Cleveland, Ohio, in 1796. The Connecticut Land Co. had purchased that plot of ground in the previous year for $1.76.

Today, even at 1933's depreciated real estate level, that public square is probably worth ten million times its original purchase price. Moral: Buy real estate and hang onto it. (Thank God you can't reach me with those cabbages! And that is a reminder: Has anybody seen that guy who told us to buy it, lay it away, and forget about it? Heh. Wish we *could* forget it.)

Old Moses knew a good trading site when he saw one. On the south shore of Lake Erie, utilizing the navigable Cuyahoga river which empties into the western end of the spacious harbor, Cleveland is a natural inland port. It is a first-class distribution center for raw materials. Since 1818 it has been a focal point for steam traffic, both boat and rail.

Cleveland is like a traffic policeman at the world's busiest street intersection. One stream of trade flows from New York to Chicago. Another stream—a stream of industrial products—moves between Pittsburgh and Detroit. Cleveland regulates both flows. To switch the metaphor, Cleveland is a clearing house for the business of the East and the Middle West.

More than half the population of the United States resides within a radius of 500 miles of this city. From this area comes the steel and the coal for American industry. It is the Ruhr of the Western hemisphere.

Gliding up the Cuyahoga river for six miles from its mouth, the big lake steamers which are so integral with Cleveland slide past a panorama of steel mills, oil refineries, and factories which turn out every conceivable type of iron and steel product from rivets to multigraphs, from tops to heavy castings, and from sewing machines to mammoth hoisting engines.

Although iron and steel are Cleveland's major industries, two of the biggest paint and varnish manufacturers are located there. Ready-made clothing, brick and tile, electrical machinery, and many other products are turned out in this mighty crossroads city.

Situated in 75-acre Nela Park is the National Lamp Works of the General Electric Co., which undoubtedly fashioned the light-bringing medium with the aid of which you are now reading this little piece.

America's sixth city is not, like Pittsburgh, concentratedly industrial. It preserves and conserves a fine balance between factory and home, between machines and the arts, between labor and dreams.

The Cleveland Orchestra, the Museum of Art, the Museum of Natural History, the public library, the munificent Public Hall with its auditorium and Little Theater, the Playhouse Square, and other cultural appurtanences are not just landmarks to be pointed out to visitors. They were not erected just because all ambitious cities have them. They are in constant use, and are woven into the fabric of Cleveland life as definitely as the patterns of food, labor, family life, and politics.

Amateur sports, including baseball, football, basketball, and aquatic amusements, are better organized in Cleveland than in almost any other city in the country. Sports are considered as essential to *mens sano in corpore sano* as are cultural pursuits.

You will notice that Cleveland's recreation is *organized*, not spontaneous. And that leads us up to this:

If Cleveland has a civic fault, it is that of smugness. Balance often leads to that. Well-rounded, healthy people are generally satisfied. Both themselves and their surroundings please them. They are not easily disposed to change. Hence we don't expect startling progress or radical new ideas to erupt from Cleveland.

Like the South, Cleveland is a dandy place to live. It is a good city in which to rear a family. Unlike the South, Cleveland is also a good place to work. Its atmosphere is conducive to honest toil, thrift, and the rest of the pioneer's success formula.

Creative effort, the restlessness of the artist, the inventor's dissatisfaction with things as they are, are not fostered by Cleveland.

Staid, sober, busy, healthy, stayputtish, Cleveland is a good city in which to be comfortable.

* * *

Youngstown, Ohio

Ohio, the state of Presidents, is said to have more important cities within its borders than any other state in the union. Youngstown is one of these important Ohio cities, yet outstaters generally hear little or know little about it. It's Youngstown's tough luck to belong to the same state which encloses Cleveland, Cincinnati, Toledo, Columbus, Akron, Dayton, and other well-known municipalities.

In any other state Youngstown would be a major city, and its name would be as familiar as that of the capital. For it is important. It is the home, for example, of the Truscon Steel Co., the Republic Steel Corp., the Youngstown Sheet & Tube Co., Republic Rubber Co., Ohio Leather Co., Standard Slag Co., General Fireproofing Co., and several United States Steel Co. mills.

Chiefly iron and steel. Also, in good times, huge quantities of brass and bronze castings, metal furniture, machinery of various kinds, boilers and tanks, furnaces, bricks, cement blocks, chemicals, and even oilcloth.

Industrially it is in the top rank. Perhaps, then, in view of Youngstown's comparative obscurity, you would venture that the city could use a good publicity man. Possibly. But Youngstown doesn't want one. It is a modest town. Not given much to boosting. Luncheon clubs are not rabid. People work and live quietly. Solid and substantial.

Believe it or not, almost *half* the families of this steel-working city own their own homes. Last available figures ranked Youngstown fifth in the United States as to percentage of home ownership.

People who own their own homes are generally civic conscious. They want good schools and libraries, hospitals and churches, parks and playgrounds. They are meticulous about the water supply, zealous of the city's health rating, insistent upon the preservation of the peace. So it is with Youngstown.

Over the city's appurtenances—save one—we'll skip. You can take it for granted that they are all Grade A.

But one we want to talk about. It is Mill Creek Park. Its name tells the story. "Down By the Old Mill Stream" (in which song your correspondent can swing a mean bass) might have been inspired by this rustic, calming natural paradise.

Of all the parks we've seen in this broad land, none seems so restful or so nerve-quieting as this surprising adjunct of an iron-and-steel city. It is seven miles long, contains three lakes, a pond, the Mill Creek itself, and:

Birds, flowers, trees, caves, waterfalls, rugged rock—everything your lonesome-for-your-country-boyhood heart might desire, and in greater abundance than you can ever use.

If wild beauty doesn't appeal to you, there are picnic spots galore, all set with tables, benches, and grills. And for your youngsters there are playgrounds, baseball diamonds, tennis courts, and dancing pavillions. An 18-hole golf course and horse-shoe stakes for you, bridle paths for your wife.

All of which, in our estimation, spoils perfectly good park space. But, as we said before, the acres of untrammeled nature left "unimproved" are more than you'll ever be able to cover, anyway. If you come near Youngstown and fail to feed your soul in this park, you're no friend of ours.

Perhaps an explanation of this park, an explanation of the city's industriousness, and an explanation of its home-owning, home-loving, home-protecting characteristics may be found in the fact that it was founded by Connecticut Yankees.

John Young settled on a whole township thereabouts in 1797, and lent his name to the city which followed him. Before Youngstown had become accustomed to being an honest-to-goodness crossroads village, iron ore was discovered. Then the famous Brier Hill Coal vein. And finally limestone, the third ingredient in the smelting of iron ore. And now you know the rest of the story.

Among the native and foster sons Youngstown claims are Jesse Grant (father of President and General U. S. Grant), President William McKinley, President James A. Garfield, and Governor David Tod. Also John Brown, of Harper's Ferry fame ("John Brown's body lies a-mouldering in the grave, but his soul goes marching on"). And, more recently, the Warner Bros., who were first to produce successful talking pictures.

A substantial city, Youngstown. Well-developed industry, a remarkable assemblage of homes, a history. Of such stuff are permanency and tradition made.

* * *

Pittsburgh, Pa.

If we are to accept as a fact the premise that civilization's progress and mankind's evolution during the last two centuries have been confined chiefly to the realms of practical science and behemothic industry, then Pittsburgh should be considered the exemplification of the age and a cityfication of the farthest point yet reached along these lines of evolution.

Iron and steel have been the tools of the nineteen hundreds and twenties: Pittsburgh is essentially a steel city, and has on its industrial roster the world's second largest independent steel company, as well as seven important subsidiary divisions of the United States Steel Co.

Coal, coke, petroleum, steam, electricity—these are the magic genii with which twentieth century man has been able to multiply his hands and his strength: Pittsburgh ranks as one of the country's most important producers of these modes of power.

Power and tools. A strong heritage of the pioneer spirit in its people, including a heavy admixture of that bleak religious intensity of the fifteenth and sixteenth centuries which canonized Work as the cardinal virtue. With these ingredients, is it strange that Pittsburgh should become one of the most thoroughly industrial cities of all time?

Even if one were not acquainted with the facts concerning Pittsburgh's industrialization, one would guess them almost instantly after getting a plane's-eye view of the city.

Grimly occupying the wedge of land which is pointed by the Alleghany and Monongahela rivers bumping heads to form the Ohio river, Pittsburgh seems built for business. No fancy fol-de-rols or hopeful cocoons of future architectural beauty. Utility first, last, and in-between.

Proverbial is its smoke. And it's no fairy tale, either. Even in days of business doldrums the air is heavy, the buildings smudgy.

Pursuing our thesis to its logical conclusion, we are not surprised to find the city's brick-and-stone-and-steel aspect written on the faces of its inhabitants. Set, businesslike, and competent. Steel is God.

Center of the greatest bituminous coal producing district in the world, Pittsburgh possesses vast deposits of high-grade, easily mined coal—enough to last for decades and decades. In normal times the 3,500 mines of this district cough up 75 million tons of compressed fire annually.

Pittsburgh is also the center of the coke industry of the nation. In addition, by-product coking plants turn out (in prosperous times) millions of dollars worth of gas, coal tar (the most magic by-product of them all—even perfume comes from it), ammonium sulphate, benzol, and other substances.

Oil fields in western Pennsylvania were among the first to be tapped and sucked in this country; and they have yet to run dry. From these fields come, of course, quantities of natural gas.

Not satisfied with the above distinctions, Pittsburgh has become the acknowledged center of America's glass industry.

More: Birthplace and center of the aluminum industry, harborer of the world's largest zinc works, fosterer of vanadium, Pittsburgh does not confine its metallic activities to iron and steel.

Other industries? Sure. Westinghouse Electric & Mfg. Co. is just one of many great producers of machinery. Armstrong Cork Co. there operates the largest cork products plants in the world. Nor can we forget the H. J. Heinz Co. and its by-word "57 varieties" of preserved food products.

Bolts, nuts, rivets; wrought iron and steel; glass; aluminum, vanadium; cork; electrical machinery, steam engines; coal and coke, gas and oil. Can you think of anything else important to modern industry? Undoubtedly Pittsburgh fashions it.

Producer of Raw Materials to Industry, Pittsburgh is honestly, genuinely, and frankly the Industrial Heart of America.

Pittsburgh has a history, but it isn't interesting. When you ask Pittsburghers about it, they tell you to go down and look at the block house, and then they change the subject.

This block house, which commands a good view of the "forks" of the Monongahela and Allegheny rivers, is the remains of Fort Pitt. In 1754, when occupied by the French, it was Fort Duquesne; but four years later it became British and Fort Pitt, which it was for half a century. There's your history. The rest of the story is concerned chiefly with the development and exploitation of iron and coal.

Granting, however, that Emerson spoke truly when he said: "there is, properly, no history; only biography," then Pittsburgh does have an absorbing history. It has the story of Andrew Carnegie (one of the most amazing rags-to-riches tales of all time), and it has the stories of Henry Clay Frick, of George Westinghouse, and of Judge Thomas Mellon.

The traveller would do well to set aside at least one of the days he has planned for "doing the city" to visit one of Andrew Carnegie's libraries and read something of the lives of Carnegie and Frick. They were among the giants of the era just past, an era which permitted the growth of giants such as the world had never seen before, and is not likely to let grow again soon.

If you want to see the city, however, go first to the confluence of rivers which natives refer to as the "point," or the "forks." It really is a thrilling sight. From this spot you get a glimpse of the largest group of Pittsburgh's 850 bridges—biggest collection of any city. And you can envision here, as from no other spot in America, what industry hath wrought.

Walk back then and pay homage—place a wreath, if you feel like it, but don't attempt to lay a cornerstone or place a tablet, for all the available sites are already tableted—to the Old Block House.

Take a cab then to the Inclined Planes, from which you can see the mighty monster of steel and smoke which is Pittsburgh. Ride back through the Liberty tubes, which were once the longest vehicular tunnels in the world (now exceeded in length by the Holland tunnels connecting New York and New Jersey).

Downtown note the Gulf, Koppers Frick, and Bell Telephone buildings. You won't need to look for the Grant building, because it rises 485 feet above the sidewalk, and is topped by an aerial beacon which can be seen 75 miles from Pittsburgh, despite the smoke. Integral with this beacon is a red neon light which flashes the word PITTSBURGH in the Morse code.

Enter the Frick building to gaze at the stained-glass window by John LaFarge; and before leaving ponder the bust of H. C. Frick modeled by Hoffman. In the foyer of the Grant building is a mural by Edward Louvain. Visit also the Union Trust building, which was designed after the Library of Louvain, Belgium. Because Louvain was so nearly razed during the World War, only this copy of that architectural idea remains. In the William Penn hotel is located radio station KDKA, America's pioneer broadcaster.

Proudly standing their ground against the invasion of the skyscrapers are the Trinity Cathedral and the First Presbyterian Church, which occupy adjoining sites presented to the original congregations by the original Penns. To this writer they comprise Pittsburgh's most ennobling spot, and surpass in impressivity Wall Street's unexpected Trinity church.

Of parks there are the usual quota, but don't bother with them. Schools, too, are sufficient for a city of Pittsburgh's size and might (we forgot to tell you: Population is more than a million and a half, and Pittsburgh is the center of the nation's fifth largest industrial district). University of Pittsburgh is housed in a 40-story skyscraper.

Carnegie Institute is a strange conglomerate of unrelated collections. Most of them, nonetheless, are interesting. More than 2,000,000 different exhibits are housed within its walls—which, incidentally, are composed of 30 different kinds of marble, in keeping with the heterogeneity of itself.

You won't have time to see all 2,000,000 exhibits, but you should examine the H. J. Heinz collection of ivories, the collection of modernism in painting, the replica of the facade of St. Gilles cathedral (at Gare, France), the restored diplodocus fossil (counterparts of which Mr. Carnegie presented to half a dozen reigning monarchs, to their unexpressable embarrassment and sometimes consternation), the Childs Frick collection of taxidermied African big game, and the Herbert DuPuy collection of miniatures and antique silver.

Most interesting visits in the repertoire are the vast Westinghouse plants at East Pittsburgh, and the 15 city blocks on which the "57 varieties" are produced. The first-named began with an idea for an air brake; the second with a horseradish patch.

Westinghouse and Heinz, Carnegie and Frick, Mellon and Jones. Coal and iron. Great inventive genius and great energy applied to great natural resources. Result: Pittsburgh.

KLEIN STOVE CO. HOLDS LEONARD RETAIL SCHOOL

PHILADELPHIA — Four hundred dealers of the Klein Stove Co., Philadelphia Leonard distributor, attended the company's annual spring convention here on March 9 and heard officials of the Leonard factory present plans for 1933 sales activities.

R. I. Petrie, Leonard's general sales manager, presented the 1933 line of Leonard refrigerators and water coolers, and pointed out features of the products. A. M. Taylor, merchandising director, discussed sales plans and outlined the nature of the company's 1933 national advertising.

J. J. O'Neill, new business manager of Refrigeration Discount Corp., explained new wholesale and retail rates of the organization's 1933 finance plan.

Address of welcome to all dealers was given by Julius Klein of the distributorship, and all of the five Klein brothers — Nathan, Gustav, Harry, Meyer, and Julius were presented to the audience by Mr. Petrie.

Walter L. Brous, Klein's sales director, made a short speech and introduced the nine members of his field organization. Also on the program was the showing of a four-reel sound film depicting step-by-step operations in the manufacture of Leonard refrigerators.

PITTSBURGH DEALERS SEE GRUNOW LINE

PITTSBURGH — The Brown-Dorrance Electric Co., local distributor for the Grunow refrigerator, was host to approximately 300 dealers at a meeting and banquet in the William Penn hotel here Feb. 28, at which the new Grunow refrigerator was presented.

H. C. Bonfig, general sales manager of the Grunow Corp., headed the group of factory officials who introduced the new line to the dealers. R. G. Dorrance, vice president of the Brown-Dorrance Co., acted as toastmaster.

BUTTE DEALER APPOINTED BY WESTINGHOUSE

BUTTE, Mont.—Ellis Paint Co. has been appointed dealer for major Westinghouse appliances in this city, according to an announcement made recently by Earl B. Stearns, local representative of the Westinghouse Electric Supply Co.

Plans have been made for an advertising and sales promotion program on the Westinghouse products, according to Martin J. Fleming, manager of the Ellis Paint Co.

TEMPRITE
the BEER COOLER
Repeated Tests prove that BEER entering at any temperature is instantaneously cooled to 40° as drawn . . .
tested and approved by the Nation's largest Brewers and Bar Makers
Unequalled in
ADAPTABILITY
to all bar fixtures . . .
INSTANTANEOUS COOLING . . .
as beverage is drawn
POSITIVE TEMPERATURE CONTROL . . .
automatic and accurate.
LIQUID COOLER CORPORATION, DETROIT

DAYS OF BALLYHOO PAST, A.M.A. IS TOLD

NEW YORK CITY—"Leave out the ballyhoo, and make your advertising do honest, businesslike selling" was the suggestion given manufacturers at the consumer marketing conference held the week of March 5 under auspices of the American Management Association.

Consumers today are intelligent. They have a good knowledge of most merchandise, and they expect the national advertising of manufacturers to tell them just what they may expect to find in a certain product, the speakers declared.

Miss Alice Edwards, executive secretary of the American Home Economics Association said, "Clear, definite statements about specific qualities and performance were few and far between, we found in an advertising study made in 1931."

Manufacturers are quick to notify the public of the smallest improvements made in a product, she said, but almost never make any effort to tell consumers when the quality of a product has been lowered.

Miss Edwards believes that manufacturers err in attempting constantly to sell the best grade of their merchandise to all types of consumers, and asserted that substantial profit could be made by presenting second- and third-rate goods as such to some buyers.

Consumers Need Different Grades

"The truth of the matter is that consumers need different grades. In fact, few can afford 'the best.' A good medium grade is usually adequate, while an inexpensive article of a low grade will in some cases meet a given need.

"Consumers have already discovered that prices do not serve as a satisfactory indication of quality grades, which fact helps to assure an interested audience to manufacturers who come forward with definite, useful information about their goods."

L. D. H. Weld of McCann-Erickson, Inc., told the conference that advertising technique has probably profited by the current economic situation in that advertisers have been forced to study more seriously than ever before advertising methods from the standpoint of their effectiveness.

Said he: "This scientific approach is manifesting itself through more careful appraisal of consumer wants, through more painstaking media analysis, through a renewed interest in copy testing, and through a more scientific measurement of market potentials . . ."

3 Groups of Advertisers

Manufacturers, said Mr. Weld, have grouped themselves into three classes since the business depression began: those who have continued to advertise in much the same volume as was used during normal times, those who have reduced their appropriations but are still attempting to keep in the public eye, and those who have stopped advertising almost entirely.

His comment was this: "The public is forgetting all about the latter group. Some of them will have to begin all over again to get public recognition and good will."

Discussing manufacturers' distribution policies, Godfrey M. Lebhar, editor of *Chain Store Age*, said that the principal faults of these policies lie in the manufacturers' choice of too many or too few distribution channels.

When a company selects a large number of outlets, it cannot give proper attention to any of them, said Mr. Lebhar, and it will not receive in any degree the cooperation which would result from use of fewer channels.

Merchandising Methods Change

As exemplary of those organizations using too few outlets, the speaker pointed out that type of manufacturer who neglects to change his merchandising methods when those in use have long since become antiquated.

"There are manufacturers in every line of industry," he said, "who have seen their volume steadily dwindle but have stuck loyally to their old channels of distribution. Following the slogan, 'Pick your lane and stick to it,' too literally, they have failed to notice the red light ahead.

"A brand new highway may have been constructed parallel to the rocky road they have been traveling, but they pursue their bumpy course, disregarding the warning sign, 'This road dangerous. Proceed at your own risk'."

Packaging and Shipping

Methods of packaging came in for much discussion at another conference sponsored last week by the American Management Association—one on packaging and shipping.

Francis Chilson, consultant and packaging editor of *The Drug and Cosmetic Industry*, asserted that in his opinion, "consumer convenience has been greatly over-emphasized in package designing."

No dealer, he said, will object to any type of a package so long as the product inside is in demand by the public, and is supported by constant advertising.

No manufacturer should carry the "package family" idea to extremes, said Roy Sheldon, president of Industrial Design, Inc. It is wise to have the packages of related products show a reasonable amount of variety while still preserving some semblance of their relationship.

This speaker also emphasized the importance of testing the appeal of packages frequently. "By this means he (the manufacturer) can determine if a less expensive package will prove economical or whether a higher cost container will justify itself in increased sales."

TWO NEW DISTRIBUTORS FOR LEONARD APPOINTED

DETROIT—Winne Sales Co. of Minneapolis and the Watts-Newsome Co. of Birmingham, Ala., have been appointed distributors by the Leonard Refrigerator Co., according to R. I. Petrie, general sales manager.

Territory of the Winne organization will include sections of Minnesota, Wisconsin, and South Dakota, while activities of the Watts-Newsome Co. will be carried on in most of Alabama and a part of Florida, according to Mr. Petrie.

800 Dealers See Norge Line at Philadelphia

PHILADELPHIA—More than 800 dealers from eastern Pennsylvania, southern New Jersey, and Delaware were at the meeting held here Feb. 17 by Trilling & Montague, Norge distributor, at which Howard E. Blood, president, and other officials of the Norge Corp. introduced the 1933 line of Norge refrigerators to this territory.

The meeting was closed with a banquet held at the Elks hotel ballroom, which was attended by some 1,200 dealers and salesmen and their wives, and prominent Philadelphia citizens.

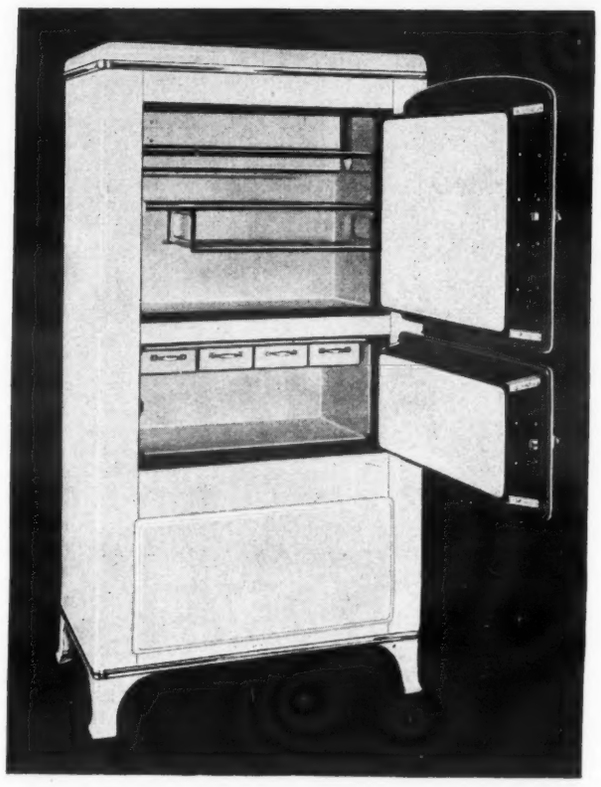
UNIT SALES INCREASED IN PHILADELPHIA AREA

PHILADELPHIA—A total of 32,757 electric refrigerators, valued at $7,085,375, were sold in the Philadelphia metropolitan territory in 1932, according to the Electric Association of Philadelphia.

This was an increase in unit volume of 6 per cent over 1931, and a decrease of about 6 per cent in dollar volume as compared with 1931.

The total unit sales were 123.5 of the territory's sales quota, according to the Electric Association.

WHERE *are your Profits?*



AT THE right is a POTTER Refrigerator. Elsewhere in this paper is published a list of certain mechanical details or specifications of the POTTER Refrigerator. In this issue also are many of the specifications of other makes. We defy any distributor to determine his profit possibilities from either the picture of our refrigerator or the specifications of any make published in this issue. It cannot be done!

Until a distributor has a full grasp of all the factors entering into a business, he cannot make a sound decision, neither can he determine where the profits are.

While, to those who handled standard refrigerators in 1932, large profits for 1933 may seem impossible of attainment, allow us to make this point clear: In the year 1932, according to the records of Electric Refrigeration News, 840,000 refrigerators were sold for a sum total retail of $163,800,000, or an average retail price of $195.00 per unit. This means that on a dollar volume basis, one-half the business was done at $195.00 *or less*. By like token, it also means that the other half of the business was at $195.00 *or more*. Thus we see the refrigerator market clearly divided into two distinct classes.

While, there is nothing in our franchise that prohibits POTTER distributors from carrying a secondary line to serve the buyers in the lower price bracket, *we ourselves are not interested in this market, for therein lies the delusion and snare for those who are looking for real profits. On the other hand, the upper half of the market definitely belongs within the Potter classification.*

The year 1933 will see a further drop in the *average* price, probably to the level of $175.00. Our prices for our half of this market start at $167.00; our highest priced model is $474.00. For this class of purchaser, we offer the greatest dollar value in the industry.

So far as we are concerned, we have abandoned the price market to those manufacturers who are consumed with the "price" complex. *We have turned our every energy toward meeting the needs of that vast number of people who are buying QUALITY, PERFORMANCE, and UTILITY FEATURES. That's where the profits are to be found!*

To those distributors who have finally reached a point of determination to make sound profits in the year 1933, we have a definite message. Our message is not based upon the siren song of volume at any price. We do not have one message for the specialty-minded distributor; another conflicting message for the department store. Our message is based upon the soundest specialty selling program in the history of household refrigeration. It covers the most highly saleable product offered in the industry. It carries definite dollar profits which have not been equaled by any other refrigerator manufacturer.

There are five models in the Potter line. When a distributor sells one of each, he makes a gross profit of $925.50 or an average of $185.10 per sale. We challenge distributors with 1932 experience to check this profit against their sales of any refrigerators they may have handled last year, and determine whether on such a basis, there would not have been a vastly different story of profits displayed on their books.

Our story is too long to tell in this advertisement. Too many factors are involved in arriving at an intelligent understanding of the unique position the POTTER Refrigerator occupies in the refrigerator industry.

The selling season is almost upon us. We urge those distributors who understand what specialty selling means in profits, to promptly communicate with us and allow us to show them the most interesting set of Business Specifications in the industry.

Many distributors are now enrolled under the POTTER Banner for the year 1933. If your territory has not already been taken, we urge you to act promptly.

President

TRICOLD REFRIGERATOR CORPORATION

296 Delaware Ave. Buffalo, N.Y.

POTTER REFRIGERATORS

HOME SERVICE

NASHVILLE WOMAN SUBMITS BEST RECIPE

GREENVILLE, Mich.—Mrs. Lawton T. Sumner of Nashville, Tenn., is recipient of the most recent $10 cash prize award in the national recipe contest sponsored by the Gibson Electric Refrigerator Corp. here.

Miss Jacqueline Frost, director of Gibson's home economics department, publishes Mrs. Sumner's prize-winning recipe as follows:

Frozen Marble Pudding

3 3-oz. pkg. chocolate wafers
1 cup milk, scalded
1 cup cream, whipped
1 teaspoon almond extract
4 tablespoons powdered sugar
Few grains salt

Crumble the wafers. Pour over them the scalded milk. Stir until smooth. Cool. Whip the cream; add powdered sugar and flavoring. Place a layer of the cooled chocolate mixture in bottom of refrigerator tray, then a layer of whipped cream. Fill tray with alternate layers, having the top layer of whipped cream. Freeze. Unmold on platter. Serve sliced.

Variation: cocoanut snaps instead of chocolate wafers. Evaporated milk (prepared for whipping) instead of whipped cream. One or more layers of whipped cream may be tinted.

Mrs. John Dorney of Milwaukee was awarded the $10 February prize offered by Gibson.

Mrs. Dorney's recipe follows:

Children's Special Frozen Delight

2 teaspoons gelatine
½ cup cold milk
1 cup cream, whipped
2 teaspoons flour
2 teaspoons vanilla or almond extract
2½ cups scalded milk
1 cup granulated sugar
2 eggs, separated
Few grains salt.

Soak gelatine in the ½ cup of milk for 5 minutes. Scald the 2½ cups of milk in top of double boiler. Add soaked gelatine, sugar, flour, salt, and 2 beaten egg yolks. Cook for about 10 minutes, or until of custard consistency, stirring frequently.

Pour into freezing trays for very quick chilling, or cool in large bowl. When cool, fold in the 2 well-beaten egg whites; add whipped cream and flavoring. Freeze in trays at No. 8 until partly solidified; finish freezing at No. 5. Mixture may be beaten with a fork every hour while freezing, if convenient.

Cole Showroom Has All-Electric Kitchen

NEW YORK CITY—Rex Cole, Inc., New York City distributor for General Electric Co., has installed an all-electric kitchen in its showroom at 265 Fourth Ave. here.

Miss Ilah Manchester, Rex Cole home economist, is making plans to conduct demonstrations for groups of prospects and users in this kitchen.

NEW COLD COOKERY METHODS REVEALED

DETROIT—Recent cold cookery advances made by Kelvinator Corp. home economists were revealed to home economics directors of distributors' organizations from Michigan and northern Ohio here last week.

Classes were held throughout the week by Miss Marion Sawyer and Miss Dorothy Covert, members of the factory kitchen personnel, and the economists were schooled in the most advanced methods for conducting field demonstrations. In addition, they attended refrigeration classes and were thoroughly trained to demonstrate features of the 1933 Kelvinator household refrigerators.

A feature of the school was a public demonstration at which the visiting economists observed the culinary experts of the factory organization as they conducted a program for Detroit women in the local branch of Kelvinator Sales Corp.

The Detroit school was one of a series held in eastern, middlewestern, and southern points during the past several weeks for home economists of distributing and public utility organizations.

Southern Utility Holds Cold Cookery School

CHARLOTTE, N. C.—Cold cookery schools in 100 towns in the territory of the Southern Public Utilities Co., were started March 13 as a feature of the company's spring Kelvinator sales drive, according to B. W. Little, Kelvinator sales manager of the utility.

Directed by Miss Dorothy Covert, factory home economist, 10 Southern Public Utilities home economists will give Kelvinator demonstrations in connection with these schools.

Electric Kitchen Offers Home Service Great Opportunity Says Miss Nolan

By Edwina Nolan, Home Service Director, G. E. Refrigeration Dept.

THE job of a Home Service department is finding prospects, selling prospects, and training prospects and salesmen. In other words it is "Telling the Story" to the prospect, the user, and the salesman. A Home Service department that isn't a selling department is not fulfilling its opportunity of service, nor has it a place in the distributor's organization, if it fails to make its contribution to sales.

The Home Service department again finds its place as it produces prospects by its demonstrations to prospects, either in large groups or in smaller cooking schools, in educating present users to proper use of their equipment, and training them to be salesmen.

Importance of Education

Its important function of training the salesmen is not to teach them to cook, or to teach users how to cook or use the refrigerator, but to make it possible for them to tell a more effective story to their prospects, because we know that if a salesman has a thorough understanding of the equipment he is selling, what it will do, and its advantages over other methods, he is in a position to be convincing and to convince the prospect.

The Home Service department produces materials for all the other departments, to help them to more effectively do their jobs. This is done by the development of new ideas on the product, new and exclusive uses for the product, and in offering a helpful service not only to the salesmen, but to new prospective users.

If one were to take away the efforts of a Home Service department today, from the refrigerator manufacturer's advertising, promotional work, and sales training—his story would be one that deals primarily in mechanism and not in results.

We can apply this not only to the factory Home Service department but to each Home Service department in a distributor's organization.

The new all-electric Kitchen is the basis for a new type of activity in the G. E. Home Service department. This new activity is centered about the demonstration of appliances which go into the all-electric Kitchen.

Necessity of Demonstration

A salesman can spend six months convincing a prospect of the need for these appliances, and frequently the prospect is unmoved. But, is there anything that will prove the salesman's statements as effectively as a demonstration of the product in use?

This is particularly true in the case of those appliances that must be in operation, such as the dishwasher and the range. No woman will admit that a man can tell her how to cook, or how to wash her dishes. But another woman can take this same woman and demonstrate these appliances to her. It is more the psychology of the situation and calls for the word of a woman.

We can divide the kitchen operation into six steps—buying and storing the food, preserving the food, planning and preparing, cooking, serving and cleaning up afterwards. These six operations can be divided under three major headings, namely—Preservation, Preparation and Sanitation.

Each of these operations involves the products which are to be found in the all-electric Kitchen.

Department Store Activity

Tying in with this new work is the new G. E. department store activity—which of course involves the General Electric Kitchen. The Kitchen is opened with a display and show by the Ellis Manning and the House of Magic. This brings hundreds of spectators and visitors into the store, but it only serves as an opening, in fact it can be compared to a parade before a circus; the real show follows, and this is a cooking school held for one or two weeks, that will tell the actual story of the Kitchen.

For example, J. L. Hudson Co. in Detroit, opened a General Electric department. The first week, the House of Magic conducted their demonstration. For two weeks after this show, a cooking school was held, with an average attendance of 150 a day, and there is where the prospects were found.

The newspaper cooking school is promotional activity that affords excellent advertising and stimulates a wide interest. In the past some distributors have conducted their own newspaper schools and with great success.

The G. E. Home Service department has outlined its objectives for 1933 as follows:

1. That every individual in the distributor and factory organization take the course in General Electric cookery. This does not mean a correspondence course, but an actual cooking lesson.

2. To see that every distributor organization has an organized Home Service department. In many cases, it will be possible for one home service girl to divide her time between two or three distributors, but there must be one main point in every district that is an authority on home service for its entire area.

3. The department is offering a more effective cooperative program for home service from its office. A prospectus has been planned which will outline a plan for the distributor's Home Service department for 1933. It also contains a 5-day complete demonstration for the General Electric kitchen.

Simplify Activities

We intend to devote a great deal of time on simplifying the functions for a Home Service director. We realize that where distributors will be selling a great number of ranges, that it would be impossible to have enough girls to make a personal call on each new user, but we feel that many of these personal calls will be eliminated if the instructions are simple, easily understood, and accurate.

The G. E. Home Service department is working on such an instruction pamphlet. It is not intended to take the place of the recipe book, but it is additional help in the selling of electric ranges.

Cookery Not Difficult

Electric cookery is not difficult, if it is understood. We are not teaching people new methods of cooking, but we are giving them a better method of cooking, one which is more simple. We say you can roast meat without a roasting pan, just using the broiler or a shallow utensil, or we tell prospects a double boiler isn't necessary. This doesn't mean that if they want to use a roaster or a double boiler, it won't work, but this is one of the advantages of an electric range which is not found in any other method of cooking, and we recommend it.

The same is true with refrigeration. If a woman wants to shop every day for her groceries, vegetables, etc., there isn't any reason why she shouldn't. But electric refrigeration eliminates unnecessary, expensive, bothersome methods. It has a distinct advantage over other methods of refrigeration.

ELECTROLUX UNIT USED IN HEINZ FACTORY KITCHEN

PITTSBURGH—An Electrolux refrigerator is the nucleus of the H. J. Heinz Co. demonstration kitchen, according to Josephine Gibson, director of the home economics department of the Heinz company.

In the Heinz factory which covers more than 15 blocks, the home economics department is located in the Auditorium and Service building. The auditorium has a seating capacity of 300 people, and is filled daily for the demonstrations in the modern kitchen.

Miss Gibson is a graduate of the Carnegie Institute of Technology. and is assisted in her department by Frances Peck and a corps of trained home economists. The home service department of the company was organized six years ago.

Recently Miss Gibson exchanged the four-year-old Electrolux in the demonstration kitchen for a new refrigerator.

127,791 Women Attend Kroger Food Shows

CINCINNATI—The Kroger Food Foundation Cooking School and Food Institute, staged by the Food Foundation of the Kroger Grocery & Baking Co., has played to 127,791 women in midwestern cities since its opening in Madison, Wis., on Sept. 20, 1932, according to a recent report from Kroger officials.

Kelvinator refrigerators are used in the school and Miss Pauline Peacock of the Kelvinator home economics staff has traveled with the Food Foundation in its tour of the cities. Each week Miss Peacock gives a 10-minute lecture on electric refrigeration during the cooking school.

Miss Frost to Speak On Food Economy

GREENVILLE, Mich.—Miss Jacqueline Frost, home economics director of Gibson Electric Refrigerator Corp., will present a series of lectures on food economy here on March 29, 30, and 31.

Miss Frost has just completed a new home economics manual for use as a reference book by Gibson distributors and dealers.

Here It Is . . .

FEDDERS
New Improved
ICE CUBE MAKER
REFRIGERATOR
Complete with Low Side and Cabinet

Freezes up to
2304
ICE CUBES
Weighing 240 lbs.
PER 24 HOURS

The many new and exclusive 1933 improvements in this Fedders Ice Cube Making Refrigerator give you the answer to the ice cube worries of Hotels, Restaurants, Clubs, Tea Rooms, Hospitals, Institutions,—in fact, everyplace where people are served.

It is designed and built as a complete refrigerator. It combines the dependability of Fedders Cooling Units with built-in improvements in cabinet design which eliminate sticking trays, frozen tray fronts, dead air pockets and other causes of service calls and profit-eating repair costs.

It makes possible TWO PROFITS FOR YOU!

FIRST: A good worthwhile profit on the complete low side and cabinet.

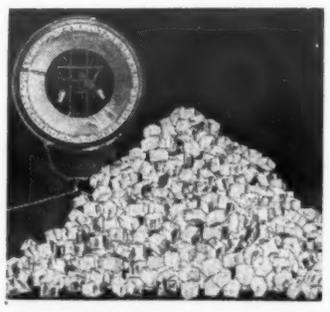
SECOND: Another sales outlet for your high side (½ H.P. or larger).

This new Fedders Ice Cube Making Refrigerator gives you the improvements your prospects have been waiting for, and a DOUBLE PROFIT FOR YOURSELF. Send the coupon for complete illustrated catalog.

Read These New Improvements

1. Each tray housed in individual sleeve.
2. Air circulating space between tray fronts and shield prevents fronts freezing to shield.
3. Vent holes provide air circulation and eliminate dead air pocket between door and shield.
4. Tray sleeves have ample height to prevent pyramided cubes freezing to top of tray sleeve.
5. Two large capacity storage trays.
6. Heavy brass chrome plated Front Shield can not rust.
7. Occupies Floor Space about 2 feet square.
8. Makes 60 pounds of ice cubes per freezing for a few cents worth of electricity.
9. For Flooded or Dry Expansion Systems. Can be hooked into existing refrigeration line or installed with your own compressor high side.
10. Equipped with Fedders Automatic Expansion Valve for single installations or Thermostatic Valve for multiple hook-ups.

60 POUNDS PER FREEZING



Send this Coupon for complete illustrated catalog - - -

Fedders Manufacturing Co., Dept. N3,
57 Tonawanda St., Buffalo, N. Y.

Please send me illustrated catalog and prices of the new Fedders Ice Cube Maker.

Name .....

Concern .....

Address .....

PATENTS PENDING

FEDDERS
MANUFACTURING COMPANY
57 Tonawanda St. Buffalo, N. Y.

Specialists on Heat Transfer Devices Since 1896

COMPANION MERCHANDISE

NEW HOTPOINTS TO BE READY APRIL 1

CHICAGO—Hotpoint electric range sales headquarters here has announced the addition of two new automatic electric range models, "The Chicagoan" and "The Century" to its line. They will be available for distribution April 1 from 60 warehouses in various parts of the country, which will provide 24-hour delivery service.

The new models are featured by a new cameo ivory color designed to harmonize with any modern kitchen color scheme, modern styling, and a number of new convenience devices.

Range for Built-In Kitchens

The "Chicagoan" is designed for built-in kitchens. It has a flat back wtih no protrusions, fits flush against the wall, flat sides may be fitted against cabinet or table, and the legs may be shifted forward to avoid the baseboard.

The timer, appliance outlets, and temperature control are grouped at the rear of the oven top. The warming compartment with Calrod heating units is controlled by a tumbler switch on switch panel. Two appliance receptacles, one of which operates from the timer clock, makes any lamp socket appliance completely automatic.

New Type Oven Shelves

The range is fitted with new extension-type sliding oven shelves with lock-stop. These shelves extend to make every inch of oven space accessible without stooping. The smokeless broiler keeps melted fats in a protected well away from the heat. A concealed drip tray acts as a top for the warming drawer, sliding out to permit removal of food spilled on surface units.

The "Chicagoan" measures 42 in. wide and 25 in. deep, with the cooking top 36 in. from the floor. Oven is 16 in. wide, 14 in. high, and 18 in. deep. Standard equipment includes quick-heating open-coil oven units, three 1,000-watt open-coil surface units and one 2,000-watt open coil surface unit.

Console Style Range

The "Century" is designed in popular console style. A "quick-reference cooking chart" is an exclusive feature with this model. This chart consists of a porcelain enameled disc with basic cooking instructions imprinted on its face and mounted on the back of the range back splasher. The disc revolves like a wheel.

The "Century" is equipped with a porcelain-enameled drip tray which slides forward to permit removal of food spilled on the surface units.

Features of its construction are a large buffet oven top, counterbalanced shelf-type oven door, reversible load-balancing switches, a convenient appliance outlet, and a three-point plug receptacle for timer connection. It has four open coil surface units as standard equipment.

Electrol Appoints Three New Distributors

NEW YORK CITY—Three new distributor appointments have been announced by Electrol, Inc., oil burner manufacturerer.

Raisler Engineering Co. of this city, merchandising subsidiary of the Raisler Heating Co., has taken the Electrol franchise for the metropolitan New York area.

The Hajoca Corp. of Philadelphia has signed to take on distribution of the oil burner unit in its 26 branch offices in Pennsylvania and the South.

Fred C. McClean, Inc., Springfield, Mass., has taken on the distribution of Electrol products in Hampden and Hampshire counties.

New York sales and merchandising of Electrol will be under the direction of T. G. Walker, who comes to Raisler from Electrol's Boston branch where he has been manager. The oil burner division in the Philadelphia office of the Hajoca Corp. will handle burners at retail under the guidance of C. H. Glenn.

Fell Will Represent Permutit Co.

NEW YORK CITY—The appointment of J. A. Fell of Evansville, Ind., as factory representative of the domestic water softener sales department of the Permutit Co. for the state of Indiana has been announced by Oliver P. Harris, manager of domestic sales for the Permutit Co.

Majestic Auto Set Is Described

CHICAGO—The new Majestic auto radio recently announced by the Grigsby-Grunow Co. is an all-in-one receiver, the chassis, speaker and Duro-Mute "B" eliminator being housed in a metal case 6 in. high, 6 in. wide, and not quite 12 in. long.

It is priced to sell at $49.50, including tubes, suppressors, and Federal tax paid (less antenna).

The receiver is a superheterodyne using six tubes. It has a dynamic speaker, uses Spray-Shield tubes, and incorporates an automatic volume control. The control unit is mounted on the steering column. Tuning dial is illuminated when the receiver is in operation. A key locks the receiver and acts as an "on" and "off" switch.

85% OF SPACE FOR BURNER SHOW TAKEN

NEW YORK CITY—Approximately 85 per cent of all available space for the tenth National Oil Burner Show to be held in Chicago, June 12-16, has already been reserved, according to Harry F. Tapp, executive secretary of the American Oil Burner Association, who said that a total of 59 exhibitors had taken 90 spaces up to March 8.

Within the next 30 days the complete program for the convention together with the list of speakers will be announced to the industry, Mr. Tapp states.

Manufacturers who have signed up for exhibition space at the show include:

American Radiator Co.; Anchor Post Fence Co.; Automatic Burner Corp.; Automatic Products Co.; Bell & Gossett Co.; Century Electric Co.; Century Engineering Corp.; Champion Oil Burner Sales Corp.: Chase Brass & Copper Co.; Cleveland Steel Products Corp.; Cuno Engineering Co.; Detroit Lubricator Co.; Dongan Electric Mfg. Co.; Enterprise Oil Burner Co.; Electrol, Inc.; Fitzgibbons Boiler Co., Inc.; General Electric Co.; Hart Oil Burner Corp.; Jefferson Electric Co.; The K-W Ignition Corp.; Lynn Products Co., Inc.; Mayflower Oil Burner Corp.; McDonnell & Miller; McIlvaine Burner Corp.; The Mercoid Corp.; Minneapolis-Honeywell Regulator Co.; Monarch Mfg. Works, Inc.; Motor Wheel Corp.; The Murphy-Miles Co.; Nu-Way Corp.; The Ohio Electric Mfg. Co.; Penn Electric Switch Co.; Petroleum Heat & Power Co.; Preferred Utilities Mfg. Corp.; Quaker Mfg. Co.; Reif-Rexoil, Inc.; Silent Glow Oil Burner Corp.; Taco Heaters, Inc.; Teesdale Mfg. Co.; The Timken Silent Automatic Co.; Tuthill Pump Co.; Viking Pump Co.; Wood Hydraulic Hoist & Body Co.; York Oil Burner Co., Inc.

Utility Employes Rent Electric Ranges

DETROIT—For rentals of either $1 or $1.50 per month, according to the choice of electric range selected from the two available, the Detroit Edison Co. now offers kitchen ranges to its employees.

The rental contract infers no obligation to purchase, but one-half of the sum of rentals paid will be credited on purchase.

WAYNE OIL BURNER SALES AHEAD OF 1932 TOTALS

FT. WAYNE, Ind.—Weekly sales of Wayne oil burners, with one exception, are maintaining or exceeding the 1932 weekly sales records, which were the highest in the company's history, according to John A. Berghoff, general manager of the Wayne Oil Burner Corp.

Three news pieces of sales promotion pieces have recently been mailed out by the Wayne Oil Burner Corp., in continuation of the factory plan to keep dealer activity at a high pitch at all times by sending out a steady flow of sales helps.

Westinghouse Has New Cooking Manual

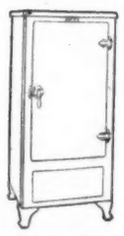
EAST PITTSBURGH, Pa.—Westinghouse Electric & Mfg. Co. has published and is now distributing a new 63-page commercial cooking manual, "Cooking and Baking by Electricity."

The data and information presented are the result of research and investigation by the Westinghouse commercial cooking department, headed by H. M. Wible.

It takes

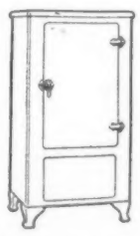
MORE

than a good refrigerator



SERVEL *Hermetic*

A de luxe line for those who want the best money will buy at prices that are reasonable. 9 distinctive models.



CRUSADER

A brand new line that meets competitive prices and beats competitive quality—the Champion of low cost refrigeration. 5 different models.

Write Today

SERVEL knows that it takes more than just a mechanically perfect refrigerator to make sales . . . dealers must be able to make money on *every* sale—they must be able to invest enough effort to increase sales—they must have a forceful selling plan that is effective. *Servel believes that greater profits must go to the man who actually makes the sale.*

Servel, one of the oldest, largest and strongest manufacturers of electric refrigeration in the industry, conducted an intensive sales study from factory to buyer and then declared a new deal! Dealers in every line of business today find it necessary to capitalize on every legitimate source of profit—Servel helps them to do so—with new lines—lower prices—bigger profits—new advertising set-up—direct effective sales help from the factory—the most complete refrigeration line and a new field of live prospects. Servel's entire plan faces the facts—is keyed to sell under today's conditions.

SERVEL SALES, INC.

EVANSVILLE, INDIANA

SERVEL SALES, INC., Evansville, Indiana.
Please send me the details of Servel's "new deal" without obligation to me.

*Name of Store*_____

*Address*_____

*Name of Sender*_____

ELECTRIC REFRIGERATION NEWS

The Newspaper of the Industry

Published Every Week by

BUSINESS NEWS PUBLISHING CO.

Also publishers of REFRIGERATED FOOD NEWS (monthly) and REFRIGERATION DIRECTORY and MARKET DATA BOOK (annual)
550 Maccabees Building, Woodward Ave. and Putnam St.
Detroit, Michigan. Telephones: Columbia 4242-4243-4244

Subscription Rates:
U. S. and Possessions and countries in Pan-American Postal Union: $3.00 per year; 2 years for $5.00
Canada: $6.00 per year (U. S. Money)
All Other Countries: $5.00 per year
Advertising Rates on Request

F. M. COCKRELL, *Publisher*
GEORGE F. TAUBENECK, *Editor*
JOHN T. SCHAEFER, *Engineering Editor*
PHIL B. REDEKER, *Assistant Editor*
ELSTON D. HERRON, *Staff Writer*

HOWARD W. MATEER, *Advertising Manager*
GEORGE N. CONGDON, *Business Manager*
JOHN R. ADAMS, *Production Manager*

Member, Audit Bureau of Circulations
Member, Associated Business Papers
Copyright, 1933, by Business News Publishing Co.

VOL. 8, NO. 12, SERIAL NO. 209, MARCH 22, 1933

Reversing the Trend

SENSING that prices were moving upward, a New York editorial association last week requested the NEWS to wire a statement concerning a rising trend of prices on electric refrigeration products—this statement to be combined with similar announcements from other industries in a nation-wide press release.

Object of this story, which was to be broadcast to the public through newspapers all over the country, was to induce people to *Buy Now* before prices rise higher. The psychology of this, of course, is good. People buy on a rising market. Money comes out of hiding when hoarders are convinced—or even suspect—that it will buy less in the future.

Leaders Reduce Prices

No statement that electric refrigeration prices are moving higher could be forthcoming from the NEWS, however. Apparently the opposite is true. When Frigidaire, Kelvinator, and General Electric, the three leaders, are all reducing prices, it would seem that the industry is heading toward an even lower price level than that which obtained in 1932.

Late last month General Electric announced a new price schedule beginning at $99.50 on its junior line, and including lower prices on its Monitor Tops. Crosley brought out a $95 freight-paid model in January. On the front page of this issue will be found the news of Frigidaire's new base price of $96, Kelvinator's and Leonard's base price of $97. These are by all odds the lowest prices any of the older and larger manufacturers have ever quoted on household electric refrigerators.

Follow Frigidaire's Example

Experience of the past has always been that other companies have followed Frigidaire's suit on prices—and usually right to the penny. Frigidaire established $130 as the almost universal base price last spring, and $112 as the equally completely accepted base price last fall. If history is to repeat itself, $96 will likely be the "leader" price this spring.

There are two situations, however, which may instigate a price boost later in the year. First is the lack of competition from what older manufacturers last year were pleased to label: "fly-by-nights" and "jillopies."

'Fly-by-Nights' Go Home to Roost

Last year the private-brand manufacturers who sprang up somewhat unexpectedly to provide department stores with $99.50 jobs considerably worried the more substantial concerns. The president of one of the leading manufacturers estimated that newcomers would account for sales of at least 150,000 units in 1932.

As a result, Frigidaire definitely set out to run the "fly-by-nights" into the ground by matching low prices with equally low prices plus a nationally known name, national advertising, extensive sales promotion, and the engineering and sales talent developed through many years of experience.

Apparently this program is working. One hears little about the "fly-by-nights" these days. Scarcely any manufacturers have made their debut in 1933. With the exception of a few department store washouts of dumped odd-lot 1932 models (usually with nameplates removed), no startling low prices have been forthcoming. And now that Frigidaire seems to have won its point, Cause No. 1 for lowered prices possibly has been removed.

Better Refrigerators, Not Cheaper

Another reason for believing that prices may bound upward in the future is the fact that today the industry is thinking in terms of *better* and *more attractive* refrigerators, rather than cheaper boxes. Last year the tendency was to strip the line down to bare essentials, to introduce nothing new, but to drive downward toward a price.

This year the number of improvements have been legion. Almost every issue of ELECTRIC REFRIGERATION NEWS during 1933 has carried a five-column streamer headline on the front page announcing some innovation or new device which makes refrigerators more desirable and more saleable. Style has been introduced. New units have come to the fore. In every respect 1933 refrigerators appear to be better than 1932 models.

Unless manufacturers can continue to get lower quotations from suppliers, and unless distributors and dealers remain contented with smaller discounts, a price increase seems almost inevitable.

Kelvinator's '40-Day Clause'

Kelvinator Corp. has recognized the validity of this evidence that prices may have to go up by tagging a unique "40-day clause" to its new low price schedule. President GEORGE MASON declares it is entirely likely that materials costs will be rising in the very near future, and that he hopes they do! Hence the $97 base price on Kelvinator and Leonard refrigerators is guaranteed for just 40 days.

The effect of this announcement should undoubtedly work toward the closing of sales to hesitant prospects who are lingering around on the hunch that prices may undergo further downward revisions. It should also spur new prospects to enter showrooms and enter into negotiations for something they have long wanted but of which they have been postponing the purchase.

Time Ripe for Price Boosts?

Perhaps the time is now ripe for price increases. The public is in a mood to expect them. Foodstuffs and other essential items have become somewhat dearer since President Roosevelt's amazing series of moves to restore economic solidity. Stocks have risen, reflecting the new attitude.

The government's demand that hoarded gold be returned has left many people with quantities of paper money (which they received for their returned gold) on their hands—and this paper money doesn't look so good to them now that the currency is to be expanded by two billions of dollars. Other people who got hooked in recent bank closings are deciding to spend their money, and take no chances on losing savings again. Hoarding goods, rather than money, is now the fashionable thing to do.

Of course if the new lower prices bring sales volumes so satisfactory that manufacturers, distributors, and dealers all do a profitable business this spring, there may be no reason for pushing them upward again. Nevertheless there is evidence at hand to support the view of those who believe that the new price schedules represent the bottom, and that they may not remain long.

LETTERS

F-12 Ordinance

Fremont Wilson
Consulting Engineer
50 Church St., New York City
March 15, 1933.

Editor:

I have submitted to the New York City Board of Aldermen the following suggested amendment to proposed Ordinance No. 74 dealing with the refrigerant dichlorodifluoromethane:

Re. proposed ordinance No. 74, dated March 1, 1933, may I suggest that for the safety and general health of our citizens who may use mechanical refrigerators, that, in accordance with, *now*, well known data that the wording of said ordinance be changed to read as follows:

Section 1, paragraph (d), line 3, strike out the words in italics "in the state or condition in which it is installed in the system."

Section 222-a, page 3, line 3, after the words "open flame" insert the words "and, or, hot metal surfaces (dull red heat, about 550° Centigrade —1022 Fahrenheit)."

Line 4, after the words "irritant refrigerants" put a period, and strike out the words on lines 5 and 6 "unless and except the room be adequately ventilated to the same extent as is required for machinery rooms in Section 220-2 (a) to (e) inclusive."

May I suggest for your attention that regarding the wording of paragraph (d), section 1, those words in italics prove conclusively, that the applicant who asked for the introduction of this proposed ordinance knew, and knows, that dichlorodifluoromethane has been proven both toxic and irritant under flame, or red hot metal conditions, and therefore, should not be permitted to be used in any household or other refrigerator if and when exposed to such conditions.

Regarding recommendation re. section 222-a, line 3, the words "hot metal surfaces" etc., are deemed necessary, as the Underwriters' Laboratories tests, experiments and reports proved conclusively that dichlorodifluoromethane when exposed to hot metal surfaces, as stated, becomes toxic and irritant.

Regarding the last suggestion embodied in lines 5 and 6 on page 3, as previously stated, the use of dichlorodifluoromethane should never be allowed in kitchens, kitchenettes or similar rooms, where there is an ever present possibility, and probability, of exposure to open flame, or flames, and red hot metal, as previously described.

FREMONT WILSON.

Conditioned Air

Electric Refrigeration Department
General Electric Co.
Hanna Bldg., Cleveland
Feb. 28, 1933.

Editor:

George Taubeneck described, in the February 22 issue of ELECTRIC REFRIGERATION NEWS, my happiness in the new G. E. commercial line, and he stated my position accurately, as with the addition of these 1933 models, we have General Electric commercial all-purpose refrigeration.

It is very difficult to describe the new chilling units without making it seem that we are writing a General Electric sales story, but I know of no other way in which to enumerate the features. The chilling unit is, of course, the heart of General Electric "conditioned-air" refrigeration and it would not be possible to have the results we obtain were it not for the design resulting from the research work of the General Electric laboratory.

Conditioned-air refrigeration came as the result of the research work of the General Electric laboratory, after exhaustive studies on the affect of temperature on bacteria growth, the affect of humidity and affect of circulation on various foods and affect of combinations of these essentials.

The "conditioned-air" chilling units are designed to give a balanced condition of humidity and temperature with rapid circulation. As you know, a low humidity brings about dehydration of foods, as well as a rapid change in color, weight and flavor. Under a high humidity, on the other hand, foods become slimy and rapidly deteriorate to an unsalable condition.

In the G. E. laboratories the aim has been towards a combination of desirable low temperature of 36 to 40° F. with the corresponding desirable relative humidity of 80 to 85 per cent.

Another factor of great importance has been rapid cooling. The "conditioned-air" chilling units provide a minimum of at least five times faster cooling, and this air so circulated, is moist air.

All good foods have their individual qualities and odors. These odors reflect the various tastes and flavors of the foods. If this were not true, the object of carrying a variety of food products for sale would be defeated. Raspberries certainly have an odor differing greatly from York State cheese, while the scent of butter differs greatly from that of bacon, liverwurst or boiled ham.

Air actually passes through as well as around foods placed in a refrigerator. The air leaving the foods is laden with their odor and the action is similar to the human breathing process.

The rapid circulation of air provided in the General Electric chilling unit immediately moves the odor-laden air away from the foods. The odor-laden air is forced over and across wet plates which are formed in tunnel shapes. The wet plates must be just cold enough so the moisture will not be frozen on the plates.

These cold wet plates perform two very important jobs in the refrigerator. 1. Wash the odors from the air. 2. Cool the air to the proper temperature. After the air passes through the plate tunnels, it is ready to return for its double duty of cooling the foods and removing more odors.

Summarizing the features of the "conditioned-air" chilling units, we have a design that occupies only a small space in the cabinet or display case. We have a design that furnishes balanced refrigeration of low temperature, correct humidity, rapid circulation and washed air.

W. E. LANDMESSER.

New Directory

Bankers-Commercial Security Co., Inc.
270 Madison Ave., New York City
March 11, 1933.

Editor:

While we have not noticed any reference in recent weekly issues of the ELECTRIC REFRIGERATION NEWS that the 1933 REFRIGERATION DIRECTORY and MARKET DATA BOOK is available, we do want to be among the first to receive our copy of this valuable hand-book. Will you, therefore, kindly enter our order for one copy of your 1933 edition, to be sent to us as soon as it is available?

Your weekly issues of the ELECTRIC REFRIGERATION NEWS are always read immediately upon arrival by most of our executives. The REFRIGERATION DIRECTORY and MARKET DATA BOOK is constantly in use. It would be impossible for us to keep up with the new developments in this rapidly moving industry without these valuable publications.

W. R. BENTLEY.

Answer:

We had planned to issue a new book in April or May. During January, when we were considering an announcement to advertisers, we noted the tendency of manufacturers to be slow in developing their designs and sales programs for 1933, and it was quite apparent that the industry was getting off for a slow start. We, therefore, decided to delay the announcement but at the same time keep ourselves in readiness to proceed at the opportune moment.

We are actively collecting additional material for the next *Directory* as you will note from various tabulations being published from time to time in ELECTRIC REFRIGERATION NEWS and REFRIGERATED FOOD NEWS. A large portion of the directory material is already in type and can be published after final corrections. In brief, we are ready to do the job whenever it appears that the expense will be justified.

Line Forms to the Right

The Celotex Co.
Palmolive Building
919 North Michigan Ave.
Chicago
March 10, 1933.

Publisher:

With regard to Mr. Taubeneck, let me say that I have read every one of his articles because I have been a diligent reader of the NEWS. Without Mr. Taubeneck's work the NEWS would lose a good deal of its color. After reading his article in the March 8 issue. I have come to the mature conclusion that I have spent too much time in the insulation business and I hope that you will take this letter as a formal application for the position of Mr. Taubeneck's assistant.

Please understand that this application, which will be accompanied by proper references, if you need them, is made contingent upon Mr. Taubeneck's assigning me to some of his difficult work, such as accompanying movie stars on journeys, as he describes in the March 8 issue.

I was extremely interested and happy to read that issue which I think was delightful. Particularly, I liked Mr. Taubeneck's comments on Tom Mix and his Leo Carillo story. Please give Mr. Taubeneck my personal regards and sincere congratulations on his work.

J. H. BRACKEN,
Manager.

Long Felt Need

Refrigerating Engineering Service
6203 Easton Ave., St. Louis, Mo.
Feb. 10, 1933.

Editor:

Your paper answers a long felt need in the electric refrigeration industry, and for our part we say "more power to you."

W. J. HINSHAW.

How to Get Dealers

As Told By G. H. Lehleitner of Stauffer-Eshleman & Co., Ltd., New Orleans

By Elston D. Herron

NEW ORLEANS—"Getting good, live dealers in small towns is the refrigerator distributor's toughest problem,' says George H. Lehleitner of Stauffer-Eshleman & Co., Ltd., Norge distributor here. But this young southerner thinks he has the solution to that problem: He uses Prestige as a field man.

This is how he explains what he means:

"Good dealers in small towns are hard to find, and difficult to sell, unless they know something about the distributor and the product he has to offer.

"So when we set out to get Norge dealers in a new section, we never start to work in small towns until we have secured as dealerships in the larger cities several good retail establishments which are recognized in that part of the country as smart, stable organizations.

Let News Spread

"Then we wait for the news and advertising of these larger stores to spread out to the smaller towns, and tell dealers there that the big store managers have thought it worth while to take on the Norge line.

"We let the prestige of the big retailers do a part of the selling job with the smaller dealers," he explains. "It helps break down their sales resistance.'

"When we want to set up a dealership in a town of 25,000 or more, we go first to the offices of the best newspaper there, and talk to the paper's advertising manager," he explains.

"Then we give him a sales talk about Norge, just as though we were trying to sell him a refrigerator. When we've finished, we say this: 'Now here's the kind of product we have to offer. We want a good dealer in this town. You know about our product now, so tell us who would be a good dealer for it.'"

Advertising Managers Help

Newspaper advertising managers are always anxious to help find a good dealer, Mr. Lehleitner says, because they know a good refrigerator dealership will use plenty of advertising space. Sometimes, they go so far as to join the distributor in interviewing the prospective dealer.

In a good-sized town or city, a newspaper advertising manager is a better source of good leads than a banker, because the former knows not only what firms are financially *sound,* but those that have stability *plus aggressiveness.*

In smaller towns, newspapers aren't so dependable as lead-givers, Mr. Lehleitner has found, so he and his men go to managers of power utility branches for help.

Utilities Assist Field Men

These men are anxious to help the distributor locate a good dealer, because the latter will make enough sales to help build up the local power load. But before the utility man is asked for help, he is given the Norge sales talk, to give him a better idea of the type of dealer wanted.

After the distributor's salesman has his list of recommended prospects, he goes next to the banks in the city—be it large or small—and checks on the financial standing of the retailers about to be contacted.

Best prospective dealer is then visited, and signed by the distributor salesman, if possible.

"It pays to be careful in setting up a new dealership," Mr. Lehleitner says, "because if a dealership fails, it will take a lot of valuable time to get another one, and the name of the product the dealer handled before he failed will be in disfavor in that section for a long, long time."

Stauffer-Eshleman field men are given a rule to bear in mind when they look for new dealerships. Here it is: "Don't shy away from any retailer who doesn't sell some line akin to refrigeration. We want someone who can sell Norge; what his other line of business is doesn't matter."

That the field men have followed this rule is evident from the fact that one of the distributor's best dealerships (Teer Co., Eunice, La.) is a mortuary.

Mr. Lehleitner has his own ideas, too, on what the distributor salesman's approach to the prospective dealer should be.

"Too many distributor salesmen, he says, overlook the fact that dealers are in business to make money. A field man should spend less time talking about the *name* of his product and more about the *profit* in it.

"It isn't name appeal or price appeal that makes a retailer take on a line of refrigerators. It's the profit appeal."

Of course, he adds, the field man's talk of profit falls short if he has an inferior product to sell. The refrigerator's quality must satisfy the buyer; it must be so good that the dealer can sell the public on the product.

Practically all of the distributor's 54 dealers sell Norge refrigeration exclusively, and the distributor tries always to avoid getting dealerships already handling other makes.

Sole Privileges Granted

"We will give sole retail privileges to a single dealer in towns ranging up to 50,000 in population, if he agrees not to take on another make of refrigerator," says Mr. Lehleitner.

"When a dealer handles a single make, the distributor isn't bothered fighting the 'special discount offers' made by competing companies at certain seasons, which tend to make the dealer push the higher-profit units more than others."

Number of Calls Reduced

Number of calls on dealers by distributor salesmen is also reduced by having a dealer organization handling Norge exclusively, according to Mr. Lehleitner. "There is less trouble-shooting to be done," he says.

This distributing organization is now turning some of its attention to establishment of dealerships in the southern half of Mississippi, which is included in its territory.

Recently, Mississippi's state, county, and city privilege taxes—collected from electric refrigeration dealers, among others—were reduced, making it possible for small dealerships to operate more profitably than before.

Reduction of the tax rate is responsible for Stauffer-Eshleman's increased activity there.

All of Louisiana and Mobile county in Alabama are also included in this organization's territory.

113,895 Reached by Cleveland League

CLEVELAND—A total of 113,895 people, nearly one-tenth of the total population of Cuyahoga county, were reached by the Exhibit and Lecture Bureau of the Electrical League of Cleveland in 1932, league officials have announced.

Of the 113,895 people who were reached, 92,566 came to the exhibit as visitors, and the remaining 21,329 attended lectures on electrical homemaking given by the League Lecture Bureau.

KELVINATOR PLANS ADVERTISING DRIVE

DETROIT—Six national magazines, more than 1,100 newspapers, 22 trade periodicals, and five times as many outdoor boards as were used in the spring of 1932, will carry the story of Kelvinator domestic and commercial refrigeration to the public this spring.

The campaign which opened this month is heralded as the greatest advertising drive ever put on by Kelvinator Corp. The magazine, trade paper, and outdoor advertising copy will be supplemented by formal invitations, special window displays, street banners, tire covers, and other forms of promotional material.

Additional coverage will be obtained through the mailing of an 8-page tabloid magazine, the "Illustrated Home News," to every wired home within the dealer territories. This publication, which will carry dealer identification, will tell the story of Kelvinator electric refrigeration by means of photographs. A new colorgravure printing process, whereby although only two colors are actually employed, the final effect is that of many colors and intervening shades, is being used.

Brooke, Smith & French, Inc., advertising agency which has been handling Kelvinator's national magazine and newspaper advertising, has been awarded the outdoor contract, and will direct the campaign in that field as well as in the others.

National magazines to be used in the drive include *Saturday Evening Post, Good Housekeeping, Collier's, Christian Herald, Ladies Home Journal,* and *McCall's.*

The spring showing marks the beginning of a four-month sales drive, designated as a "Four-In-One Campaign" which title ties in not only with the advertising theme of "4 Refrigerators in 1" but also with the idea of four campaigns in one. During each of the first three months a "campaign within a campaign" will be waged, prior to a prospect clean-up drive set for the field organization during June.

The copy appearing in March issues of national magazines shows four attractive page girls, each bearing a card upon which is printed an invitation to visit the spring showing.

In the trade publications which reach various markets for commercial refrigeration, the "Kelvinator Refrigeration Engineer" will be featured along with the product in the copy theme.

STEWART-WARNER

is doing things and going places

in ELECTRIC REFRIGERATION

Dealers who are interested in Refrigerator Profits should Investigate Stewart-Warner's "Built Around the Dealer" Set-Up

Here Are a Few Facts of Vital Interest to Thinking Retailers

You *know* that the dealer usually gets *last* consideration in a refrigerator merchandising plan. He must fit himself into a plan which is conceived with slight consideration for his best interests. He can take it or leave it on that basis.

In the new Stewart-Warner set-up, the dealer receives *first* consideration. The whole plan is built around and geared to his operation. Discounts, merchandise and advertising are tuned to his needs. As 90% of all refrigerator sales are made on time, the dealer is backed by an unusally attractive finance plan which gives him unlimited opportunity to cash-in on this market. In fact, Stewart-Warner has devoted more time—more money—in developing a sound, workable plan to help the dealer sell refrigerators than it has devoted to selling the dealer a "bill of goods". That's because Stewart-Warner is of the firm conviction that in the last analysis, the manufacturer's success depends upon the dealer who actually sells the merchandise to the Public.

If you are interested in a line of up-to-the-minute, high quality refrigerators that are conspicuous in price attraction and yet carry a real profit for you; if you are interested in a sound resale plan of selling that merchandise, you will be interested in the Stewart-Warner "Built Around the Dealer" set-up.

Dealers who are dissatisfied with their present connection, or those who wish to add to their present line, are invited to get all the *facts* before making any commitment.

Stewart-Warner Corporation
1826 Diversey Parkway, Chicago, Ill.

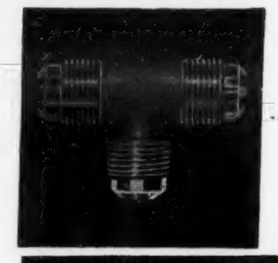
Gentlemen: Please send me full particulars of the New Stewart-Warner line and Merchandising Plan.

Name .....

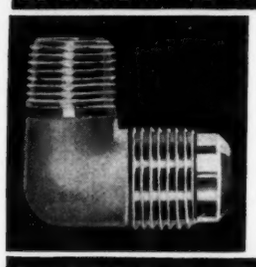
Firm Name .....

Address .....

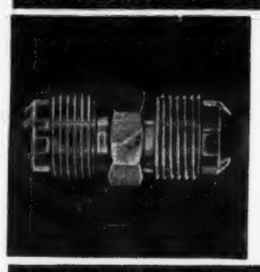
ERN 3-22



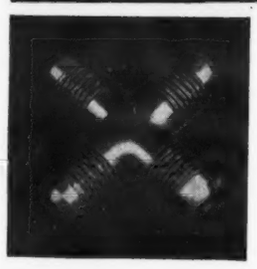
BUILT RIGHT—TO STAY TIGHT



BUILT RIGHT—TO STAY TIGHT



BUILT RIGHT—TO STAY TIGHT



CONFIDENCE

Renewed confidence in the future of American industry is the result of vigorous presidential action of the last few weeks.

A wave of buying, with firmer prices for all products is an immediate result prophesied by close students of conditions.

Taking advantage of present prices for future deliveries of manufactured articles is the high-road to future profits.

Commonwealth Brass Corporation's Seepage Proof Tube & Pipe Fittings may be used with confidence that they are "Built Right To Stay Tight".

Prices are RIGHT for one piece or a million. Consult us on your requirements.

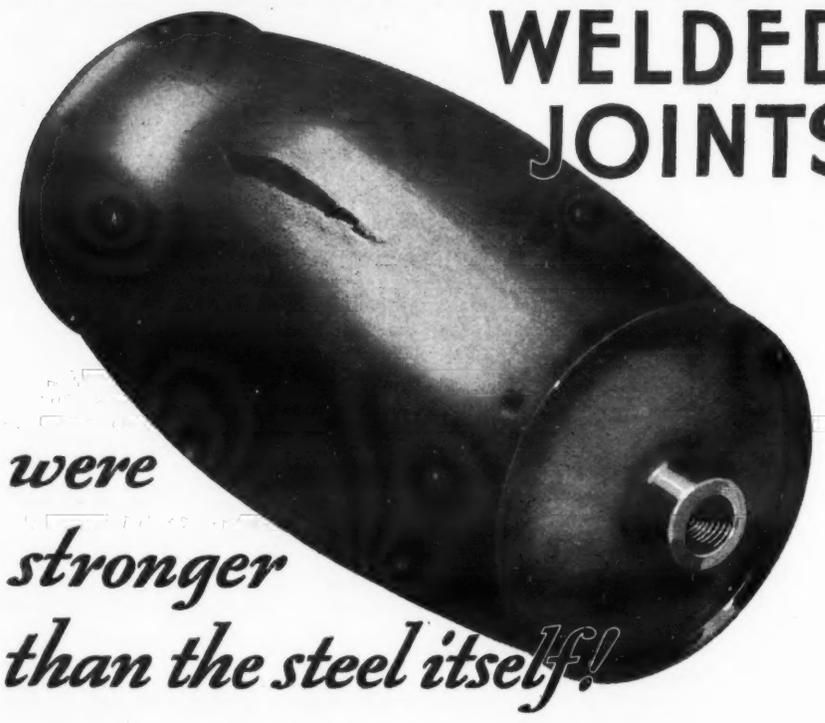
Send for our Catalog No. 36

COMMONWEALTH BRASS CORPORATION

Commonwealth and Grand Trunk R. R.

DETROIT

These Electric HYDROGEN WELDED JOINTS



were stronger than the steel itself!

This Hydrogen-Electric-Welded tank, assembled from a length of tubing, stamped end plate, and threaded bushing, burst at 2200 pounds hydraulic pressure, 1000 pounds greater than the yield point. Although there was a 21% increase in diameter, and a general distortion from the original shape of the tank, the test failed to show any effects whatever upon the Hydrogen-Welded joints. They were actually stronger than the steel itself!

The Hydrogen-Electric weld produces an integral copper-iron alloy between the parts welded. This alloy actually extends into and around the grain boundaries and produces a continuous structure—a bond which is not only strong but absolutely gas-tight.

Strength is only the first of a long list of Hydrogen-Welding's advantages. Absolute scale-free cleanliness both inside and out; the clean-cut appearance of the seam; the ability to weld a large number of pieces and to make a number of welds in each piece at the same time; worth while savings in time and material—these are some of the reasons why Bundy's Hydrogen-Electric-Welding facilities are being used by the most progressive industries in the country!

Hydrogen-Welding is adaptable to practically every product assembled from iron or steel on a production basis!

The illustrated booklet shown below will tell you how you can use the facilities of the Bundy furnace to achieve better appearance, greater strength, lighter weight, and important savings in material and labor. Send for your copy today.

BUNDY TUBING COMPANY

BUNDY TUBING COMPANY
4827 Bellevue Ave., Detroit, Mich.

Please send me a copy of your illustrated Hydrogen-Welding booklet.

Name_____

Position_____

Firm_____

City_____

Send for this free book

SPECIFICATIONS

OF SELF-CONTAINED HOUSEHOLD ELECTRIC REFRIGERATORS

GENERAL ELECTRIC

General Electric Co., Electric Refrigeration Department, Cleveland, Ohio

Model No.	S-44	S-67	S-85	S-107	S-146	S-182	HE-7	HE-5	HE-4	P4-180	P-170	P-134	P-110	P-83	PS-65	P-44	HT-70
CABINET SPECIFICATIONS																	
Overall dimensions (in.)																	
Height	65⅞	66⅛	67⅞	65⅛	66¾	68¼	57⅛	53⅜	51⅜	81	74½	71⅜	68¾	69¼	65½	62¼	66¾
Width	24	28⅞	34¼	44¾	54¼	64⅞	28¾	26½	24	44	61½	48	42	33¾	28⅜	24	28¾
Depth	21⅛	22¼	26	23½	23	26½	26¾	23¾	23¾	27¾	24¾	24¼	25	25⅞	22⅛	21	26¼
Inside dimensions of liner (in.)																	
Height	31¾	33⅞	34⅝	32¼	33⅜	33⅛	30¾	27⅝	25⅞	47¾	35½	35½	33	35	38⅛	31¼	33¾
Width	18	22⅞	27⅛	38⅜	47	55¾	23¼	21	18½	35¾	53	40¾	35½	26	22½	18	22⅞
Depth	14⅞	17	19	17¼	18	18½	19⅛	16¼	16¼	20	17	18	19	19	16⅞	14¾	17
No. of doors	1	1	1	2	2	2	1	1	1	4	3	2	2	1	1	1	1
STORAGE CAPACITY																	
Net food storage (cu. ft.)	4.4	6.7	8.5	10.7	14.6	18.2	7.0	5.0	4.0	18.0	17.0	13.4	11.0	8.3	6.7	4.4	7.0
No. of shelves	4	4	4	8	8	8	4	4	4	10	12	8	8	4	4	4	4
Total shelf area (sq. ft.)	8.0	11.6	16.0	20.0	25.2	30.4	12.0	9.4	7.8	26.6	26.7	22.1	20.4	15.4	11.6	8.0	12.3
ICE CUBE TRAYS																	
No. of trays	2	4	4	4	4	4	3	3	2	4	4	4	4	4	4	2	4
No. of cubes produced	32	84	104	104	104	104	60	60	40	104	104	104	104	104	84	32	84
Weight of cubes (lbs.)	3½	9	12	12	12	12	7½	6¾	4½	12	12	12	12	12	9	3½	9
THICKNESS OF INSULATION (in.)																	
Top, sides, & bottom	2½	2½	3	2½	3	4	2½	2½	2½	3½	3½	3	2½	3½	2½	2½	2½
Door	2⅞	2⅞	2⅞	3⅞	2⅞	3⅞	3	2⅞	2⅞	3½	3½	3	2½	3½	2⅞	2⅞	2⅞
COMPRESSOR SPECIFICATIONS																	
Capacity, B.t.u. per hour, 100° room, 20° evaporator	400	460	650	700	700	1400	700	650	590	1400	1400	700	700	650	460	400	460
Motor size (hp.)	1/10	1/8	1/6	1/6	1/6*	1/3*	1/6	1/6	1/6	1/3	1/3*	1/6	1/6	1/6	1/8	1/10	1/8
Compressor speed r.p.m.	1740	1740	1740	1740	1740	1740	625	575	525	1740	1740	1740	1740	1740	1740	1740	1740
Compressor bore (in.)	1	1	1 1/32				....	....	....	1 1/32					1	1	....
Compressor stroke (in.)	.55	.7	1	1	1	1	....	....	....	1	1	1	1	1	.7	.55	....
No. of cylinders	1	1	1	1	1	2	....	....	....	2	1	1	1	1	1	1	....
Displacement, cu. ft. per minute of rotary compressors	....	....	....	....	....	....	.70	.65	.59	....	....	....	....	....	....	....	....
Refrigerant in system (lbs.)	3½	5¾	4½	5	5	8	3½	3½	3½	8	5	5	5	4½	5¾	3½	3½
PRICE, f.o.b. factory	$155	$220	$315	$400	$490	$645	$175	$135	$99.50	$655	$590	$440	$375	$330	$240	$175	$260
WEIGHT, net (lbs.)	262	371	496	615	677	997	212	200	160	980	927	686	811	501	425	306	....

*These models can be provided with either 1/3 or 1/6 hp. machines, depending upon severity of the load.

* * *

CABINET MATERIALS
Make of cabinet .....General Electric
Material used for frame....P4-180, P-170, P-134, P-110—spruce; others all steel
Finish of shelves.....S & HE lines, & models PS-65, P-83, P-44, HT-70—plated; others—tinned
Materials used for breaker strip..Textolite
Material used for gasket..Moulded rubber
Make of gasket .....General Electric
Make of insulation....S & HE lines, & models PS-65, P-44, HT-70—Thermocraft; others—Celotex or Insulite

HARDWARE
Make of hardware .....General Electric
Process of manufacture .....Stamped
Basic metal of hardware .....Brass
Finish of hardware .....Chromium

EVAPORATOR
Make of evaporator .....General Electric
Evaporator construction ....Shell & tube
Metal used..HT-70 & HE line—Stainless steel; others—steel finished in porcelain
Type of refrigerant control....High side float
Type of ice cube trays.....Aluminum & Du-Flex rubber

COMPRESSOR
Make of compressor .....General Electric
Type of system...HE line—conventional; others—hermetically sealed
Type of compressor..Model HT-70 & HE line—rotary; others—reciprocating
Compressor drive ..HE line—belt; others—direct
Type of shaft seal.....HE line—bellows; others—none
Location of compressor .....Above

LUBRICATION
Brand of compressor lubricant....Mineral oil
How often should motor be oiled....HE line—annually; others—never

MOTOR
Make of motor .....General Electric
Type of motor ..S & HE lines—capacitor; others—split-phase induction

FINISH
Cabinet finish (exterior)..S line—Sanak; HE line—Glyptol; others—porcelain
Cabinet finish (interior) .....Porcelain

REFRIGERANT
Refrigerant used .....HT-70—methyl formate (CH_3COOH); all others—sulphur dioxide

CONTROL
Make of control .....General Electric
Type of control .....Temperature
Temperature regulation method..Manually
How defrosted....HT-70—Semi-automatic; others—shut down unit

CONDENSER
Make of condenser .....General Electric
Method of cooling....HE line—fan; others—natural draft
Type of condenser..HE line—finned tube; HT-70—formed steel; others—copper tube

SPECIAL FEATURES
Model HT-70—foot pedal door opener, electric light; all but HE models—vegetable tray; HE line—push-open type door latch.

POLICY
Guarantee on cabinet .....1 year
Guarantee on system....HE line—1 year; others—1 year plus 3-year service contract
Repairs made by .....Factory, minor adjustments in field
Are replacement parts sold to independent service companies .....No

SERVEL

Servel Sales, Inc., Evansville, Ind.

Model No.	SC-3C	SB-3A	SB-4	SB-5B	SC-6	SB-7	SBP-5B	SCP-6	SBP-7	SB-9	SB-11	SB-14	CD-46	CD-51	CD-61	CD-71	CD-86
CABINET SPECIFICATIONS																	
Overall dimensions (in.)																	
Height	50⅝	53⅜	47⅝	54⅞	59⅛	62¾	54⅞	59⅛	62¾	62⅞	67¼	67⅜	50¾	52⅝	55	59	62¾
Width	24¾	21⅛	24¾	25¾	27¾	33¼	25¾	27¾	33¼	41½	45⅜	45⅜	24¾	24¾	25¾	27¾	35¼
Depth	26	23⅞	26	27	26½	28	27	26½	28	28½	30	31⅝	24	24	24⅞	26⅛	26⅝
Inside dimensions of liner (in.)																	
Height	26½	33⅝	32	34	35⅝	35½	34	35⅝	35½	35½	37½	37½	26½	32	34	35⅝	35½
Width	19	16½	18	19	20½	26	19	20½	26	34½	37⅛	37⅛	19	18	19	20½	26
Depth	14¼	11¼	13¾	14¾	14⅝	14⅞	14¾	14⅝	14⅛	14⅞	15¼	18¾	18	17	17¾	18	18½
No. of doors	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	1	1
STORAGE CAPACITY																	
Gross food storage (cu. ft.)	4.2	3.7	4.6	5.5	6.3	8.0	5.5	6.3	8.0	10.5	12.4	15.2	5.2	5.7	6.6	7.6	9.9
Net food storage (cu. ft.)	3.2	3.0	3.8	4.4	5.0	6.3	4.4	5.0	6.3	8.8	10.6	13.9	4.6	5.1	6.1	7.1	8.6
No. of shelves	4	5	5	5	5	5	5	5	5	6	7	7	4	5	5	5	5
Total shelf area (sq. ft.)	6.7	7.2	8.3	9.3	10.0	13.6	9.3	10.0	13.6	18.5	21.4	26.0	8.5	9.8	11.3	12.3	15.7
ICE CUBE TRAYS																	
No. of trays	2	2	3	3	4	6	3	4	6	6	8	8	2	2	3	3	3
No. of cubes produced	42	42	63	63	60	72	63	60	72	72	96	96	42	42	63	63	60
Weight of cubes (lbs.)	3.75	3.75	5.6	5.6	6.5	8.0	5.6	6.5	8.0	8.0	10.8	10.8	3.75	3.75	5.6	5.6	6.5
THICKNESS OF INSULATION (in.)																	
Top	2½	2¼	2½	2½	3	3	2½	3	3	3	3	3	2	2½	2½	3	3
Side	2	1½	2½	2½	3	3	2½	3	3	3	3½	3½	2	2½	2½	3	3
Bottom	3½	3¼	3¼	3¼	4	3	3¼	4	3	3	3½	3½	2	2½	2½	3	3
COMPRESSOR SPECIFICATIONS																	
Motor size (hp.)	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/6
Compressor speed r.p.m.	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	550	550	550	550	550
Compressor bore (in.)	29/32			1	1	1	1	1	1	1	1	1	1⅜	1⅜	1⅜	1⅜	1⅜
Compressor stroke (in.)	¾	¾	¾	¾	¾	¾	¾	¾	¾	1⅛	1⅛	1⅛	1⅛	1⅛	1⅛	1⅛	1⅛
No. of cylinders	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
PRICE, installed, less freight	$143.50	$143.50	$163.50	$174.00	$204.50	$236.00	$189.00	$222.50	$256	$348.50	$405	$471.50	$112	$137.50	$150	$180.50	$235
WEIGHT, net (lbs.)	314	305	345	356	416	516	383	424	518	626	700	778	285	310	325	375	455

* * *

CABINET MATERIALS
Make of cabinet .....Servel
Material used for frame .....Wood
Finish of shelves .....Tinned
Materials used for breaker strip.....CD models—maplewood; all other models Panelyte
Material used for gasket....CD models—rubber; others—rubberized fabric
Make of gasket.....CD models—Miller
Make of insulation.....Temlok

FINISH
Cabinet finish (exterior)..Models SBP-5B, SCP-6, and SBP-7—porcelain; all others—pyroxylin lacquer
Cabinet finish (interior) .....Porcelain

MOTOR
Make of motor .....Wagner
Type of motor.....CD models—repulsion; SB-9, SB-11, SB-14—capacitor; all others—split-phase

REFRIGERANT
Refrigerant used.....Methyl chloride
Amount in system .....SB-7, SBP-7, & SB-9 models—2.3 lbs.; models SB-11 & SB-14—2.5 lbs.; CD models—2.3 lbs.; all others—.9 lbs.

CONDENSER
Make of condenser .....Fedders
Method of cooling.....SB, SC, SBP, SCP models—natural draft; CD models—fan
Type of condenser.....Finned tube

COMPRESSOR
Make of compressor .....Servel
Type of system.....CD models—conventional; others—hermetic
Type of compressor.....Reciprocating
Compressor drive .....CD models—belt; others—direct
Type of shaft seal....CD models—bellows; others—none used
Location of compressor.....Below

LUBRICATION
Brand of compressor lubricant.....Argon
Quantity in system.....SB-7 & SBP-7 models—1½ pts.; models SB-9, SB-11, & SB-14—2 pts.; CD models—1 pt.; all others—¾ pt.
How often should motor be oiled..SB, SC, SBP, SCP models—never; CD models—annually

CONTROL
Make of control .....Cutler-Hammer
Type of control .....Temperature
Temperature regulation method....Manual
How defrosted .....Shut down unit

EVAPORATOR
Make of evaporator .....Servel
Evaporator construction .....Shell
Metal used .....Steel
Type of refrigerant control..SB, SC, SBP, SCP models—small bore tube; CD models—expansion valve
Make of expansion valve .....Detroit Lubricator
Type of ice cube trays.....Aluminum

HARDWARE
Make of hardware ....Keeler Brass and National Lock
Process of manufacture ....Forged and stamped
Basic metal of hardware .....Brass
Finish of hardware .....Chromium

POLICY
Guarantee on cabinet....SB, SC, SBP, & SCP models—2 years; CD models—1 year
Guarantee on system....SB, SC, SBP, & SCP models—2 years; CD models—1 year
Serviced by....SB, SC, SBP, SCP models—factory; CD models—distributor or dealer
Are replacement parts sold to independent service companies .....No

U. S. HERMETIC

United States Radio & Television Corp. Marion, Ind.

Model No.	HL-4 / HP-4	HL-5 / HP-5	HL-6 / HP-6
CABINET SPECIFICATIONS			
Overall dimensions (in.)			
Height	49¼	53⅞	55⅞
Width	24	26	28
Depth	22¾	24	24½
Inside dimensions of liner (in.)			
Height	25	29⅛	31⅛
Width	18⅞	19⅞	21⅞
Depth	15¼	15¾	16
No. of doors	1	1	1
STORAGE CAPACITY			
Gross food storage (cu. ft.)	4.2	5.3	6.3
Net food storage (cu. ft.)	4.0	5.0	6.0
No. of shelves	4	5	5
Total shelf area (sq. ft.)	7.9	10.1	11.5
ICE CUBE TRAYS			
No. of trays	3	5	6
No. of cubes produced	63	105	126
Weight of cubes (lbs.)	3¾	6¼	7½
THICKNESS OF INSULATION (in.)			
Door of cabinet (in)	3	3¼	3½
Side	2½	3	3
Bottom	2½	3	3
COMPRESSOR SPECIFICATIONS			
Compressor capacity (lbs.) I.M.E., 80° room, 20° coil	110 / 110	110 / 110	110 / 110
Motor size (hp.)	1/8	1/8	1/8
Compressor speed r.p.m.	1740	1740	1740
Compressor bore (in.)	1 1/32		
Compressor stroke (in.)	¾	¾	¾
No. of cylinders	1	1	1
WEIGHT, net, with accessories (lbs.)	133	162	182

(Continued on Page 19, Column 1)

U. S. HERMETIC

(Continued from Page 18, Column 5)

CABINET MATERIALS
Make of cabinet .....Rex
Material used for frame.....Spruce
Finish of shelves.....Tinned
Material used for breaker strip....Models HL-4 & HP-4—wood; others—Bakelite
Material used for gasket.....Rubber
Make of insulation .....Thermocell

FINISH
Cabinet finish (exterior).....L models—lacquer; P models—porcelain
Cabinet finish (interior).....Porcelain

HARDWARE
Make of hardware...Winters & Crampton and National Lock
Process of manufacture..Stamped & forged
Basic metal of hardware.....Brass
Finish of hardware.....Chromium

MOTOR
Make of motor .....Delco
Type of motor .....Capacitor

COMPRESSOR
Make of compressor.....U. S. Radio
Type of system .....Hermetic
Type of compressor .....Reciprocating
Compressor drive .....Direct
Location of compressor.....Above

REFRIGERANT
Refrigerant used .....Sulphur dioxide
Refrigerant in system (lbs.)
2.7 3.3 3.6

LUBRICATION
Brand of compressor lubricant..Mineral oil
Quantity in system.....900 c.c.

CONTROL
Make of control .....Ranco
Type of control .....Temperature
Temperature regulation method....Manual
How defrosted.....Turn control to "Defrost" position

EVAPORATOR
Metal used .....Steel
Type of refrigerant control.High side float
Type of ice cube trays.....Aluminum

CONDENSER
Method of cooling .....Fan
Type of condenser .....Finned tube

SPECIAL FEATURES
Electric light on models 5 & 6.

POLICY
Guarantee on cabinet.....1 year
Guarantee on system.....1 year
Serviced by....Dealer, distributor, factory

JEWETT

Jewett Refrigerator Co.
2 Letchworth St., Buffalo, N. Y.

Model No.....	JK-55	JK-65	80	100
CABINET SPECIFICATIONS				
Overall dimensions (in.)				
Height	56⅛	60⅛	67½	67½
Width	25⅛	28⅛	40¼	42¼
Depth	21⅛	22⅛	25¼	25¼
Inside dimensions of liner (in.)				
Height	28	31	37*	37*
Width	19½	21½	12½*	12½**
Depth	16½	16½	16½*	16½*
No. of doors.....	1	1	3	3
STORAGE CAPACITY				
Gross food storage (cu. ft.)	5.2	6.4	10.0	12.0
Net food storage (cu. ft.)	4.6	5.7	8.0	10.0
No. of shelves....	3	3	5	5
Total shelf area (sq. ft.)	9.8	10.7	11.0	13.0
ICE CUBE TRAYS				
No. of trays	2	3	5	5
No. of cubes produced	56	84	140	140
Weight of cubes (lbs.)	5.17	7.75	12.9	12.9
THICKNESS OF INSULATION (in.)				
Top	2½	3	5	5
Side	2½	3	5	5
Bottom	2½	3	5	5
COMPRESSOR SPECIFICATIONS				
Compressor capacity (lbs.) I.M.E.	85	85	85	85
Motor size (hp.).	1/6	1/6	1/6	1/6
Compressor speed (r.p.m.)	500	500	500	500
Compressor bore (in.)	1 5/16			
Compressor stroke (in.)	1 3/16			
No. of cylinders..	1	1	1	1
PRICE, installed	$119.50	$149.50	$550.00	$600.00
WEIGHT, total shipping (lbs.)	340	375	1300	1400

CABINET MATERIALS
Make of cabinet.....Jewett
Material used for frame.....Wood
Finish of shelves.....Tinned
Material used for breaker strip.....Stainless steel on models JK-55, JK-65; wood on models 80, 100
Material used for gasket.....Rubber
Make of insulation....JK models—Temlok; others—sheet cork

FINISH
Cabinet finish (exterior)
Models JK-55 and JK-65, lacquer; models 80 and 100, porcelain
Cabinet finish (interior)
JK-55 and JK-65, porcelain; models 80 and 100, solid porcelain liners

HARDWARE
Process of manufacture.....JK models—stamped; others—cast
Basic metal of hardware.....Brass
Finish of hardware.....Chromium

MOTOR
Make of motor.....Delco
Type of motor.....Repulsion-Induction

COMPRESSOR
Make of compressor.....Kellogg
Type of system.....Conventional
Type of compressor.....Reciprocating
Compressor drive .....Belt
Type of shaft seal.....Bellows
Location of compressor.....Below

REFRIGERANT
Refrigerant used .....Methyl chloride
Amount in system .....1 lb.

LUBRICATION
Brand of compressor lubricant.....Stanco
Quantity in system.....1 pt.
How often should motor be oiled..Annually

CONTROL
Make of control.....Ranco
Type of control.....Temperature
Temperature regulation method....Manual

EVAPORATOR
Make of evaporator.....McCord
Evaporator construction .....Tube
Metal used .....Copper
Make expansion valve..Detroit Lubricator

CONDENSER
Make of condenser.....Bush
Method of cooling.....Fan
Type of condenser.....Finned tube

SPECIAL FEATURES
Models 80 & 100—solid porcelain liners.

POLICY
Guarantee on cabinet.....1 year
Guarantee on system.....1 year
Serviced by .....Dealer
Are replacement parts sold to independent service companies.....Yes

*Two compartments with these dimensions.
**Second compartment, 14½ in. wide.

THE RIGHT DRIVE FOR 1933 REFRIGERATORS

The IMPROVED Type KC "Care-free" CAPACITOR-MOTOR

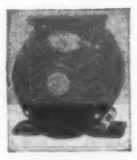
The G-E Type KC capacitor-motor — pioneered by General Electric as a superior drive for electric refrigerators offers these desirable advantages, made possible, in part, by carefully considered improvements:

1. DRIP-PROOF END FLANGES
A new feature which improves appearance and prevents foreign material from dropping into the motor.

2. SIMPLIFIED CONNECTIONS*
A terminal board in the flange eliminates all necessity of splicing and soldering leads. Three binding posts are provided for direct connection of line and cold-control leads.

3. OIL CAPACITY DOUBLED
The improved wool-packed bearings contain twice as much oil as before. The oil is held in capillary suspension, as water is held in a sponge. This prevents the spilling of oil and assures long bearing life.

4. SMALLER CAPACITOR CASE
The capacitor unit, one-half as large as before, means that less space need be allowed in your cabinet for the motor.



5. STEEL SPRING BASE
A resilient mounting which contributes to the quiet operation of this superior drive.

6. BALANCED DESIGN
No one characteristic of the improved Type KC capacitor-motor has been stressed at the expense of another.

*In addition to our improved Type KC capacitor-motor, the illustration shows a G-E cold-control unit connected to a motor by rubber-covered cable. Note how simply these connections can be made. To insure unit responsibility for the electric equipment of your refrigerator, order G-E control units and cable with the motor. For complete information, get in touch with our nearest office, or address General Electric Company, Schenectady, New York.

210-202

GENERAL ELECTRIC

Speaking of Specifications

Patents allowed and pending

Here is why the Howell Built-In Capacitor Motor is the Ideal Refrigerator Motor

Compact and neat in appearance. Capacitor built inside motor frame, the newest motor development.

Simplicity of parts. Satisfactory, economical and long-time service with a minimum of attention.

Quiet operation. A big reason why the new Howell motor is ideal for home appliances.

High starting torque. Smooth, quiet starting under any load prescribed by Howell engineers.

High efficiency and power factor and a liberal overload capacity. Real operating economy.

No commutator, no wire-wound rotor—nothing to get out of adjustment on this new motor.

Splash proof. A protected frame guards against entrance of dirt and splashing liquids.

No radio interference. Another reason why the Howell is ideal for home appliances.

Howell Sales and Service in over 50 Principal Cities

Howell Electric Motors Co.

Howell Michigan

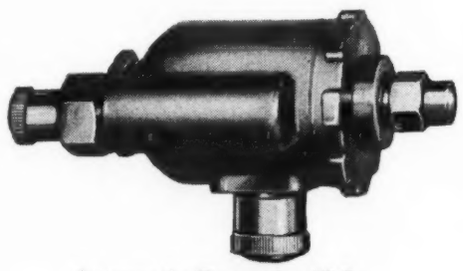
Pioneer Builders of Capacitor Start Motors

STANDARD
REFRIGERATING APPLIANCES

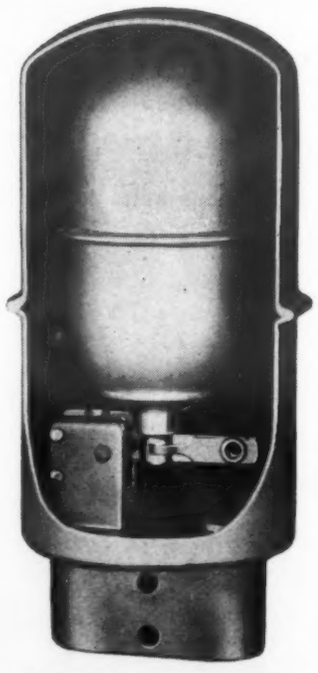
More than twenty years of experience exclusively in small machine and appliance design, development and production is the foundation on which the RILEY STANDARD REFRIGERATING APPLIANCES have been built.

Manufacturers who demand the BEST as none too good for their units realize that here are appliances that match, or surpass, their own best efforts in producing reliable, trustworthy devices.

Automatic Controls
Automatic Expansion Valves
Acid Neutralizers
Compressor Shut-off Valves
Forged Flare Nuts, Tees, Elbows
High Pressure Float Valves
Hydron Metal Bellows
Liquid Filters
Lubricants
Packless Valves
Pressure Reducing Valves
Refrigerants
Service Tools
Suction Strainers
Thermostatic Control Valves
Two Temperature Valves



Automatic Expansion Valve



High Pressure Float Valve

Water Regulating Valve

Send for Bulletins

Riley Engineering Corporation

642 Beaubien Street Detroit, Mich.

KELVINATOR

Kelvinator Corp., 14250 Plymouth Road, Detroit, Mich.

Model No.	R-42	R-64	K-40	K-50	K-60	K-80	PK-40	PK-50	PK-60	PK-70	PK-80	D-55	D-65	D-75	D-90	D-120
CABINET SPECIFICATIONS																
Overall dimensions (in.)																
Height	49½	56¼	49½	51½	56¼	61	49½	51½	56¼	57	61	56¼	57	62	66¼	68⅜
Width	25	28½	25	28½	28½	27⅜	26	28½	28½	31⅝	36	28½	31⅝	31⅝	36	48
Depth	24⅜	25¾	24⅜	25¾	25¾	36	24¼	25¾	25¾	25¾	27⅜	25¾	25¾	25¾	27¾	28⅜
Inside dimensions of liner (in.)																
Height	24⅛	29½	24⅛	24⅝	29½	29¼	24⅛	24⅝	29½	30¼	29¼	29½	30¼	35⅛	34½	34½
Width	19¾	22⅛	19¾	22⅛	22⅛	28¼	19¾	22⅛	22⅛	25¼	28¼	22⅛	25¼	25¼	28¼	39¼
Depth	16⅞	18½	16⅞	18½	18½	19¼	16⅞	18½	18½	18½	19¼	18½	18½	18½	19¼	18¾
No. of door	1	1	1	1	1	2	1	1	1	1	2	1	1	1	2	2
STORAGE CAPACITY																
Gross food storage (cu. ft.)	4.6	7.0	4.6	5.8	7.0	9.2	4.6	5.8	7.0	8.2	9.2	7.0	8.2	9.5	10.9	14.7
Net food storage (cu. ft.)	4.18	6.37	4.1	5.2	6.2	8.2	4.1	5.1	6.1	7.3	8.2	5.6	6.6	7.8	9.2	12.5
No. of shelves	3	4	3	3	4	4	3	3	4	4	4	4	4	5	5	6
Total shelf area (sq. ft.)	8.38	13.25	8.6	9.9	13.7	16.1	8.6	10.8	12.9	14.9	16.1	12.2	13.3	16.5	18.2	25.5
ICE CUBE TRAYS																
No. of trays	2	3	3	4	3	4	3	3	4	4	4	3	4	4	5	6
No. of cubes produced	42	63	63	84	81	108	63	81	108	108	108	54	81	108	108	162
Weight of cubes (lbs.)	3.4	5.1	5.1	6.8	8.25	11.0	5.1	8.25	11	11	11	11	13.75	16.5	16.5	25.75
THICKNESS OF INSULATION (in.)																
Top	2	2½	2	2½	2½	3	2½	2½	2½	2½	3	2½	2½	2½	3	3½
Side	2	2½	2	2½	2½	3	2½	2½	2½	2½	3	2½	2½	2½	3	3½
Bottom	2½	2½	2½	2½	2½	3	2½	2½	2½	2½	3	2½	2½	2½	3	3½
COMPRESSOR SPECIFICATIONS																
Compressor capacity (lbs.) I.M.E.	83.3	114.0	83.3	83.3	114.0	147.4	83.3	83.3	114.0	147.4	147.4	147.4	147.4	147.4	178.0	178.0
Motor size (hp.)	1/10	1/6	1/10	1/10	1/6	1/4	1/10	1/10	1/6	1/4	1/4	1/4	1/4	1/4	1/3	1/3
Compressor speed r.p.m.	525	410	525	525	410	525	525	525	410	525	525	525	525	525	640	640
Compressor bore (in.)	1¼	1¼	1¼	1¼	1¼	1¼	1¼	1¼	1¼	1¼	1¼	1¼	1¼	1¼	1¼	1¼
Compressor stroke (in.)	1½	1½	1½	1½	1½	1½	1½	1½	1½	1½	1½	1½	1½	1½	1½	1½
No. of cylinders	1	2	1	1	2	2	1	1	2	2	2	2	2	2	2	2
WEIGHT, total shipping (lbs.)	316	397	359	362	397	520	391	413	448	518	564	471	502	529	629	761

* * *

CABINET MATERIALS
Make of cabinet ..... Kelvinator
Material used for frame ..... Wood & steel
Finish of shelves ..... Tinned
Materials used for breaker strip ..... Composition
Material used for gasket ..... Rubber

FINISH
Cabinet finish (exterior) ..R & K lines—lacquer; PK & D lines—porcelain
Cabinet finish (interior) ..... Porcelain

HARDWARE
Process of manufacture ..... Cast
Basic metal of hardware ..... Brass
Finish of hardware ..... Chromium

COMPRESSOR
Make of compressor ..... Kelvinator
Type of system ..... Conventional
Type of compressor ..... Reciprocating
Compressor drive ..... V-belt
Type of shaft seal ..... Kelvinator bellows
Location of compressor ..... Below

MOTOR
Make of motor ..... Mostly Delco and Westinghouse
Type of motor ..... Repulsion-induction

REFRIGERANT
Refrigerant used ..... Sulphur dioxide
Trade name ..... Esotoo
Amount in system ..... Model R-42—2 lbs., 12 oz.; models D-55, D-65, D-75—1 lb., 8 oz.; models D-90 & D-120—1 lb., 10 oz.; all others—3 lbs.

LUBRICATION
Quantity in system ..... Models R-42, K-40, K-50, PK-40, PK-50—1 lb.; all others—1 lb., 10 oz.
How often should motor be oiled ..... Annually

CONTROL
Make of control ..... Ranco
Type of control ..... Temperature
Temperature regulation method ..... Automatic
How defrosted ..... Semi-automatic

EVAPORATOR
Make of evaporator ..... Kelvinator
Evaporator construction ..D line—tubular; all others—shell
Metal used ..... D line—copper; all others—steel
Type of refrigerant control ..... High side float
Type of ice cube trays ..Aluminum; also, K, PK, and D lines—rubber Flexotrays

CONDENSER
Make of condenser ..... Kelvinator
Method of cooling ..... Fan
Type of condenser ..... Finned tube

SPECIAL FEATURES
PK and D lines—electric light; D line—crisper.

POLICY
Guarantee on cabinet ..... 1 year
Guarantee on system ..... 1 year
Serviced by ..... Dealers and distributors
Are replacement parts sold to independent service companies ..... No

GIBSON

Gibson Electric Refrigerator Corp., Greenville, Mich.

Model No.	L535	L710	LH54	PH54	LH63	PH63	LH77	PH77	LH82	PH82	LH98	PH98	LH148	PH148
CABINET SPECIFICATIONS														
Overall dimensions (in.)														
Height	53½	60½	54¼	54¼	55	55	58⅝	58⅝	57½	57½	60⅜	60⅜	66⅞	66⅞
Width	26	29	27⅝	27⅝	29⅞	29⅞	34⅛	34⅛	35⅞	35⅞	39⅝	39⅝	44¼	44¼
Depth	27	28½	28⅜	28⅜	29⅜	29⅜	30⅜	30⅜	30⅜	30⅜	30⅜	30⅜	32½	32½
Inside dimensions of liner (in.)														
Height	25¼	31¾	27¼	27¼	27⅝	27⅝	30¼	30¼	29⅛	29⅛	32	32	41	41
Width	21	22	20⅞	20⅞	22⅝	22⅝	25	25	27⅜	27⅜	30½	30½	20½*	20½*
Depth	17	17	17½	17½	17½	17½	17½	17½	17½	17½	17½	17½	19½	19½
No. of doors	1	1	1	1	1	1	1	1	2	2	2	2	2	2
STORAGE CAPACITY														
Gross food storage (cu. ft.)	5.22	6.86	5.76	5.76	6.32	6.32	7.65	7.65	8.15	8.15	9.88	9.88	14.8	14.8
Net food storage (cu. ft.)	4.94	6.56	5.51	5.51	6.05	6.05	7.36	7.36	7.58	7.58	9.10	9.10	12.5	12.5
No. of shelves	3	4	3	3	4	4	4	4	5	5	5	5	6	6
Total shelf area (sq. ft.)	8.69	11.77	9.33	9.33	11.62	11.62	13.10	13.10	14.1	14.1	15.2	15.2	19.7	19.7
ICE CUBE TRAYS														
No. of trays	2	3	2	2	3	3	4	4	4	4	5	5	8	8
No. of cubes produced	63	84	63	63	84	84	105	105	105	105	126	126	210	210
Weight of cubes (lbs.)	3¾	5	3¾	3¾	5	5	6¼	6¼	6¼	6¼	7½	7½	12½	12½
THICKNESS OF INSULATION (in.)														
Top	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Side	2½	3	3	3	3½	3½	4	4	4	4	4	4	4	4
Bottom	3	3½	3½	3½	4	4	4½	4½	4½	4½	4½	4½	4½	4½
COMPRESSOR SPECIFICATIONS														
Motor size (hp.)	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5
Compressor speed r.p.m.	1740	1740	1740	1740	1740	1740	1740	1740	1740	1740	1740	1740	1740	1740
Compressor bore (in.)	1 1/16													
Compressor stroke (in.)	⅝	⅝	⅝	⅝	⅝	⅝	⅝	⅝	⅝	⅝	⅝	⅝	⅝	⅝
No. of cylinders	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Refrigerant in system (oz.)	29	33	29	29	33	33	37	37	37	37	41	41	41	41
WEIGHT, shipping (lbs.)	330	405	390	428	426	456	490	515	507	541	600	675	1024	1024

* * *

CABINET MATERIALS
Make of cabinet ..... Gibson
Material used for frame ..... LH & PH models—steel; L models—wood & steel
Finish of shelves ..... Tinned
Material used for breaker strip ..... Panelyte
Material used for gasket ..... Rubber
Make of gasket ..... Corduroy Rubber Co., & Miller

FINISH
Cabinet finish (exterior) ..... L & LH models—lacquer; PH models—porcelain
Cabinet finish (interior) ..... Porcelain

HARDWARE
Make of hardware ..... Grand Rapids Brass
Process of manufacture ..... Cast
Basic metal of hardware ..... Manganese bronze
Finish of hardware ..... Nickel-chromium plated

MOTOR
Make of motor ..... Delco
Type of motor ..... Capacitor-start

COMPRESSOR
Make of compressor ..... Gibson
Type of system ..... Hermetically sealed
Type of compressor ..... Reciprocating
Compressor drive ..... Direct
Location of compressor ..... Top

REFRIGERANT
Refrigerant used ..... Sulphur dioxide

CONTROL
Make of control ..... Ranco
Type of control ..... Temperature
Temperature regulation method ..... Manual
How defrosted ..... Defrosting position on control

EVAPORATOR
Make of evaporator ..... Mullins
Evaporator construction ..... Shell
Metal used ..... Steel, finished in porcelain
Type of refrigerant control ..... High side float
Type of ice cube trays ..... Aluminum

LUBRICATION
Brand of compressor lubricant ..... Sunoco
Quantity in system ..... 16 oz.

CONDENSER
Make of condenser ..... Bush
Method of cooling ..... Fan
Type of condenser ..... Finned tube

SPECIAL FEATURES
LH & PH models—electric light, door opener; LH-148 & PH-148 built-in water cooler and separate low temperature compartment refrigerated by separate machine.

POLICY
Guarantee on cabinet ..... 1 year
Guarantee on system ..... 1 year
Serviced by ..... Factory
Are replacement parts sold to independent service companies ..... No

*Low-temperature compartment, 11½ in. wide.

WESTINGHOUSE

Westinghouse Electric & Mfg. Co., Mansfield, Ohio

Model No.	AL30	AL45	AP45	AL60	AP60	AL73	AP73	AP90	AP130	AP200
CABINET SPECIFICATIONS										
Overall dimensions (in.)										
Height	42	55¼	55¼	59⅞	59⅞	59⅞	59⅞	59⅞	60	76
Width	24	24¼	24¼	28⅞	28⅞	31⅞	31⅞	39⅛	49½	49½
Depth	23⅜	24¾	24⅞	26⅜	26½	26⅜	26½	27½	30¾	30¾
Inside dimensions of liner (in.)										
Height	19⅜	29¼	29¼	32½	32½	32½	32½	32	29¾	50⅛
Width	18¼	17⅞	17⅞	21¾	21¾	25	25	31¼	43⅛	40⅛
Depth	15⅛	15½	15½	16⅛	16⅛	16⅛	16⅛	16⅛	19⅞	18⅝
No. of doors	1	1	1	1	1	1	1	2	2	4
STORAGE CAPACITY										
Gross food storage capacity (cu. ft.)	3.1	4.7	4.7	6.6	6.6	7.6	7.6	9.3	15.3	21.8
Net food storage (cu. ft.)	2.6	4.2	4.2	6.1	6.1	7.2	7.2	9.0	13.5	20.1
No. of shelves	2	3	3	3	3	3	3	6	5	11
Total shelf area (sq. ft.)	5.3	8.4	8.4	11.4	11.4	12.8	12.8	15.7	24.8	37.7
ICE CUBE TRAYS										
No. of trays	2	3	3	3	3	3	3	3	7	7
No. of cubes produced	36	54	54	96	96	96	96	96	192	192
Weight of cubes (lbs.)	3½	5¼	5¼	11	11	11	11	11	21	21
THICKNESS OF INSULATION (in.)										
Top	2	3⅛	3⅛	4	4	4	4	4	2¾	4
Side	2¼	2⅜	2⅜	3	3	3	3	3⅜	2¾	4¼
Bottom	2	2¼	2¼	2½	2½	2½	2½	3	2¾	3¾
COMPRESSOR SPECIFICATIONS										
Compressor capacity (lbs.) I.M.E.	84	84	84	84	84	84	84	84	168	168
Motor size (hp.)	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/4	1/4
Standard speed (r.p.m.)	1725	1725	1725	1725	1725	1725	1725	1725	1725	1725
Compressor bore (in.)	1	1	1	1	1	1	1	1	1	1
Compressor stroke (in.)	⅞	⅞	⅞	⅞	⅞	⅞	⅞	⅞	⅞	⅞
No. of cylinders	1	1	1	1	1	1	1	1	2	2
Refrigerant in system (lbs.)	2	2	2	4	4	4	4	4	8	8
Lubricant in system (lbs.)	2	2	2	2	2	2	2	2	3	3
WEIGHT, net (lbs.)	236	281	320	385	415	430	461	476	600	744

CABINET MATERIALS
Make of cabinet ..... Westinghouse
Material used for frame ..... Steel
Finish of shelves ..... Tinned
Material used for breaker strip ..... Micarta
Material used for gasket ..... Rubber

FINISH
Cabinet finish (exterior) ..... AL models—lacquer; AP—porcelain
Cabinet finish (interior) ..... Porcelain

HARDWARE
Process of manufacture ..... Stamped
Basic metal of hardware ..... Brass
Finish of hardware ..... Chromium

MOTOR
Make of motor ..... Westinghouse
Type of motor ..... Split phase

COMPRESSOR
Make of compressor ..... Westinghouse
Type of system ..... Hermetic
Type of compressor ..... Reciprocating
Compressor drive ..... Direct
Location of compressor ..... Above

REFRIGERANT
Refrigerant used ..... Sulphur dioxide

CONTROL
Make of control ..... Westinghouse
Type of control ..... Temperature
Temperature regulation method ..... Manual
How defrosted ..... Manual

EVAPORATOR
Make of evaporator ..... Westinghouse
Evaporator construction ..... Tubular
Metal used ..... Porcelain on steel
Type of refrigerant control ..... High side float

CONDENSER
Make of condenser ..... Westinghouse
Method of cooling ..... Fan
Type of condenser ..... Finned tube

SPECIAL FEATURES
AP models—interior light and vegetable tray.

POLICY
Guarantee on system ..... 1 year
Guarantee on cabinet ..... 1 year

FRIGIDAIRE

Frigidaire Corp., Dayton, Ohio

	Super					Standard	
Model No.	153	123	93	73	63	43	63	43
CABINET SPECIFICATIONS								
Overall dimensions (in.)								
Height	65	65	64⅞	61¾	57¾	55⅛	55⅜	50
Width	46¾	38⅞	32¼	28¾	26	24⅛	26⅛	23⅞
Depth	28⅞	28⅞	25⅜	25⅜	24¾	21½	24½	22¾
Inside dimensions of liner (in.)								
Height	35½	35½	36¼	33⅛	29¼	28¼	32¼	27½
Width	39⅞	32	26¼	22⅞	20½	19¼	21½	19¼
Depth	19¾	19¾	17½	17½	17	14	16	14⅛
No. of doors	2	2	1	1	1	1	1	1
STORAGE CAPACITY								
Gross food storage (cu. ft.)	16.2	12.9	9.6	7.6	5.9	4.4	6.4	4.3
Net food storage (cu. ft.)	15.1	12.1	9.1	7.1	5.7	4.2	6.1	4.1
No. of shelves	6	8	4	4	3	3	4	3
Total shelf area (sq. ft.)	29.4	24.6	17.9	15.6	10.9	8.4	13.4	8.4
ICE CUBE TRAYS								
No. of trays	8	6	6	6	3	3	3	2
No. of cubes produced	208	156	120	120	78	60	63	42
Weight of cubes (lbs.)	26	19½	15	15	9¾	7½	6	4
THICKNESS OF INSULATION (in.)								
Top	2½	2½	2	2	1¾	1¾	2	2
Side	2½	2½	2	2	1¾	1½	2	2
Bottom	2½	2½	2	2	2	1¾	2	2
COMPRESSOR SPECIFICATIONS								
Compressor capacity (lbs.) I.M.E.	245	188	188	150	150	128	....	....
Motor size (hp.)	1/3	1/4	1/4	1/5	1/5	1/6	1/20	1/20
Compressor speed r.p.m.	575	440	440	350	350	300	1700	1700
Compressor bore (in.)	1½	1½	1½	1½	1½	1½	....	....
Compressor stroke (in.)	1-7/16						....	....
No. of cylinders	2	2	2	2	2	2	....	....
Refrigerant in system (lbs.)	3½	3¼	2⅞	2¾	2¾	2⅛	1	⅞
PRICE, installed, without freight	$396	$316	$274	$231	$191	$151	$138	$96
WEIGHT, net (lbs.)	610	544	443	421	370	310	222	190

* * *

CABINET MATERIALS
Make of cabinet .....Frigidaire
Material used for frame..Super series—wood & steel; standard series—steel
Finish of shelves .....Tinned
Materials used for breaker strip.....Composition
Material used for gasket .....Rubber
Make of insulation .....(Aluminum foil) Stataflex

FINISH
Cabinet finish (exterior)..Super series—porcelain; others—Dulux
Cabinet finish (interior) .....Porcelain

EVAPORATOR
Make of evaporator .....Frigidaire
Evaporator construction .....Plate type
Metal used .....Brass
Type of refrigerant control..Super series—high side float; standard series—restrictor
Type of ice trays .....Aluminum

COMPRESSOR
Make of compressor .....Frigidaire
Type of system.....Super series—conventional; standard series—sealed
Type of compressor.....Super series—reciprocating; standard series—rotary
Eccentricity of rotor in Standard line's compressor—.072 in. Eccentric is 1 in. long, 2 in. in diameter.
Compressor drive.....Super series—belt; standard series—direct
Type of shaft seal....Bellows with Durex
Location of compressor .....Below

REFRIGERANT
Refrigerant used.....Super series—sulphur dioxide; standard series—dichlorotetrofluoethane ($C_2Cl_2F_4$)

LUBRICATION
Quantity in system..Super 153, 123, 93—17 oz.; Super 73, 63, 43—15 oz.; standard series—7 oz.

CONTROL
Make of control .....Frigidaire
Type of control .....Temperature
Temperature regulation method....Manual

CONDENSER
Make of condenser .....Frigidaire
Method of cooling .....Super series—two fans; standard series—natural draft
Type of condenser....Super series—finned tube; standard series—plate

HARDWARE
Make of hardware .....Ternstedt
Process of manufacture .....Die cast
Basic metal of hardware .....Zinc
Finish of hardware .....Chromium

MOTOR
Make of motor .....Delco
Type of motor....Super series—repulsion-induction; standard series—split phase

SPECIAL FEATURES
Hydrator; rubber ice cube tray; automatic tray release; adjustable shelves.

POLICY
Guarantee on cabinet .....1 year
Guarantee on system .....1 year
Serviced by .....Dealer

MAJESTIC

Grigsby-Grunow Co., 5801 Dickens Ave., Chicago, Ill.

Model No.	450	500	700	900	1200	1400
CABINET SPECIFICATIONS						
Overall dimensions (in.)						
Height	53	54¾	55⅜	58¾	59¾	65¾
Width	24¼	24⅛	30⅜	38¾	44	44
Depth	23¾	25¾	27¾	27⅞	29⅜	29⅜
Inside dimensions of liner (in.)						
Height	27⅜	28	29	32¼	33⅜	39⅛
Width	19¼	19⅛	24	31⅜	38	38
Depth	17⅛	16⅝	17⅝	16⅜	16⅜	16⅜
No. of doors	1	1	1	2	2	2
STORAGE CAPACITY						
Gross food storage (cu. ft.)	5.3	5.13	7.1	9.6	12.15	14.10
Net food storage (cu. ft.)	4.8	4.16	6.1	8.2	10.3	12.5
No. of shelves	4	3	4	5	6	8
Total shelf area (sq. ft.)	10.7	9.68	13.05	16.4	18.8	23.3
ICE CUBE TRAYS						
No. of trays	2	2	4	5	6	6
No. of cubes produced	42	42	84	105	170	170
Weight of cubes (lbs.)	3¾	4	8	10	15	15
THICKNESS OF INSULATION (in.)						
Top	2	2½	2½	2½	2½	2½
Side	2	2	2½	3	2½	2½
Bottom	2	2½	2½	2½	2½	2½
COMPRESSOR SPECIFICATIONS						
Compressor capacity (lbs.) I.M.E.	75	80	80	80	160	160
Motor size (hp.)	1/8	1/6	1/6	1/6	(2)1/6	(2)1/6
Compressor speed r.p.m.	525	1725	1725	1725	1725	1725
Displacement, cu. in. per revolution, each machine.	1.73	.692	.692	.692	.692	.692
Quantity of refrigerant in system (lbs.)	1½	3½	3¾	4	7½	7½
WEIGHT, total shipping (lbs.)	286	320	394	509	1055	1145

* * *

CABINET MATERIALS
Make of cabinet .....Majestic
Material used for frame.....Model 450—wood; others—steel & wood
Finish of shelves.....Tinned
Material used for breaker strip..—Phenol fibre
Material used for gasket.....Rubber

FINISH
Cabinet finish (exterior)..Models 1200 & 1400—porcelain; all others—Elasto lacquer
Cabinet finish (interior) .....Porcelain

HARDWARE
Process of manufacture .....Stamped
Basic metal of hardware.....Brass
Finish of hardware .....Chromium

MOTOR
Make of motor.....Majestic
Type of motor .....Condenser

COMPRESSOR
Make of compressor .....Majestic
Type of system..Model 450—conventional; others—hermetic
Type of compressor .....Rotary
Compressor drive..Model 450—belt; others—direct
Type of shaft seal..Model 450—bellows; others—none
Location of compressor.....Model 450—below; others—above

REFRIGERANT
Refrigerant used .....Sulphur dioxide

LUBRICATION
Brand of compressor lubricant..White oil
Quantity of lubricant in system.....Model 450—31 oz.; 500, 700, & 900—1½ qts.; others—3 qts.
How often should motor be oiled..Model 450—semi-annually

CONTROL
Make of control.....Model 1450—Cutler-Hammer; others—Penn
Type of control.....Temperature
Temperature regulation method...Manual
How defrosted.....Model 450—Shut down unit; others—defrosting cycle on switch

EVAPORATOR
Make of evaporator.....Majestic
Evaporator construction ..Shell & tubular
Metal used .....Brass & copper
Type of refrigerant control..All but model 450—high side float
Type of ice cube trays.....Aluminum

CONDENSER
Make of condenser .....Modine
Method of cooling .....Fan
Type of condenser .....Finned tube

SPECIAL FEATURES
Electric light on all but models 450 & 500.

POLICY
Guarantee on system..Model 450—1 year; others—3 years
Serviced by .....Distributor & factory
Are replacement parts sold to independent service companies .....No

NOTE TO REPAIRMEN

For high quality work at low figures, let us estimate on your requirements for

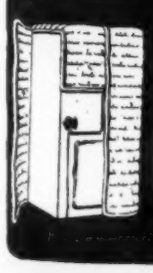
LID RINGS LID KNOBS GLIDERS

and all other HARD or SEMI-HARD RUBBER PARTS

Our plant is expertly equipped to serve the refrigeration industry in the making of hard and semi-hard rubber parts of all kinds.

VULCANIZED RUBBER CO.
261 Fifth Avenue
New York, New York
Established 1879

Fulco Adjustable REFRIGERATOR COVERS



Fit any size refrigerator! Big saving over old styles! Easy to adjust—more convenient! Made of strong, durable green drill—flannel lining and non-lump filler. Write for prices today!

Fulton Bag & Cotton Mills

LEONARD

Leonard Refrigerator Co., 14260 Plymouth Road, Detroit, Mich.

Model No.	L-425	L-641	L-451	L-551	L-651	L-752	PL-451	PL-551	PL-751	PL-95a
CABINET SPECIFICATIONS										
Overall dimensions (in.)										
Height	49¼	56⅛	52¼	54¾	55⅞	58	52¼	53¾	58⅞	65
Width	25	28½	26⅛	28½	31¾	36	26⅛	28½	31¾	36
Depth	24⅜	25¾	24¼	25¾	25¾	27¼	24⅜	25¾	25¾	27¼
Inside dimensions of liner (in.)										
Height	24⅛	29½	27	27	28⅛	27½	27	27	32¼	34½
Width	19¾	22⅛	19¾	22⅛	25¼	28¼	19¾	22⅛	25¼	28¼
Depth	16⅞	18½	16⅞	18½	18½	19¼	16⅞	18½	18½	19¼
No. of doors	1	1	1	1	1	2	1	1	1	2
STORAGE CAPACITY										
Gross food storage (cu. ft.)	4.64	6.97	5.20	6.40	7.62	8.66	5.20	6.40	8.70	10.85
Net food storage (cu. ft.)	4.18	6.37	4.68	5.65	6.77	7.69	4.68	5.65	7.85	9.61
No. of shelves	3	4	4	4	4	4	4	4	5	5
Total shelf area (sq. ft.)	8.37	13.25	10.14	12.6	12.02	17.57	10.14	12.6	18.23	19.07
ICE CUBE TRAYS										
No. of trays	2	3	3	3	4	4	3	3	4	4
No. of cubes produced	42	63	63	81	108	108	63	81	108	108
Weight of cubes (lbs.)	3.4	5.1	5.1	8.25	11.0	11.0	5.1	8.25	11.0	16.5
THICKNESS OF INSULATION (in.)										
Top	2	2½	2½	2½	2½	3	2½	2½	2½	3
Side	2	2½	2½	2½	2½	3	2½	2½	2½	3
Bottom	2½	2½	2½	2½	2½	3	2½	2½	2½	3
COMPRESSOR SPECIFICATIONS										
Compressor capacity (lbs.) I.M.E.	93.6	112.8	93.6	112.8	112.8	187.2	93.6	112.8	187.2	225.6
Motor size (hp.)	1/10	1/6	1/10	1/6	1/6	1/4	1/10	1/6	1/4	1/3
Compressor speed r.p.m.	525	410	525	640	410	525	525	640	525	640
Compressor bore (in.)	1¼	1¼	1¼	1¼	1¼	1¼	1¼	1¼	1¼	1¼
Compressor stroke (in.)	1½	1½	1½	1½	1½	1½	1½	1½	1½	1¼
No. of cylinders	1	2	1	1	2	2	1	1	2	2
WEIGHT, total shipping (lbs.)	314	390	381	430	481	543	375	463	536	589

* * *

CABINET MATERIALS
Make of cabinet .....Leonard
Material used for frame.....Spruce wood
Finish of shelves .....Tinned
Material for breaker strip....Composition
Material used for gasket..Extruded rubber
Make of gasket .....Miller

FINISH
Cabinet finish (exterior).....L models—lacquer; others—porcelain
Cabinet finish (interior) .....Porcelain

MOTOR
Make of motor.....Sunlight
Type of motor.....Condenser-transformer

HARDWARE
Make of hardware....Grand Rapids Brass
Process of manufacture.....Die-cast
Basic metal of hardware.....Brass
Finish of hardware .....Chromium

LUBRICATION
Quantity in system..Models L-425, L-451, L-551, PL-451, PL-551—1 lb.; all others—1 lb., 10 oz.
How often should motor be oiled.Annually

CONDENSER
Make of condenser .....Leonard
Method of cooling .....Fan
Type of condenser.....Finned tube

CONTROL
Make of control .....Ranco
Type of control .....Temperature
Temperature regulation method....Manual
How defrosted .....Semi-automatic

COMPRESSOR
Make of compressor .....Leonard
Type of system .....Conventional
Type of compressor .....Reciprocating
Compressor drive .....V-belt
Type of shaft seal.....Bellows
Location of compressor.....Below

REFRIGERANT
Refrigerant used .....Sulphur dioxide
Trade name .....Esotoo
Amount in system .....Models L-425—2 lbs., 12 oz.; model PL-952—3 lbs., 5 oz.; all others—3 lbs.

EVAPORATOR
Make of evaporator .....Leonard
Evaporator construction .....Shell
Metal used .....Steel
Type of refrigerant control..High side float
Type of ice cube trays.....Aluminum; 1 rubber tray with 8 largest models

SPECIAL FEATURES
All but models L-425 and L-641—Len-A-Dor, vegetable crisper, and electric light.

POLICY
Guarantee on cabinet .....1 year
Guarantee on system .....1 year
Serviced by.....Dealers & distributors
Are replacement parts sold to independent service companies.....No

JOMOCO

Jomoco, Inc., Refrigerating Division of Johnson Motor Co., Waukegan, Ill.
Model No. R-10

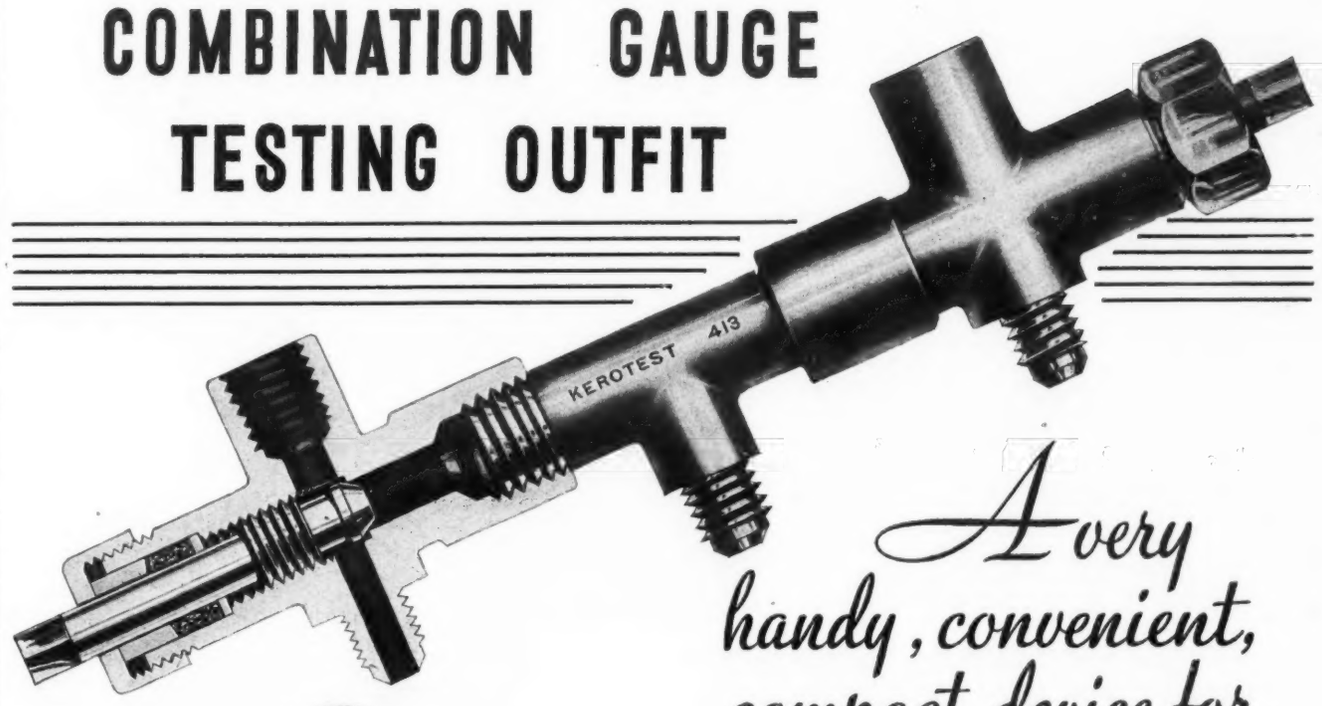
CABINET SPECIFICATIONS
Overall dimensions (in.)
Height 53¾
Width 24¼
Depth 25½
Inside dimensions of liner (in.)
Height 28½
Width 19½
Depth 16⅛
No. of doors 1

ICE CUBE TRAYS
No. of trays 3
No. of cubes produced 63
Weight of cubes (lbs.) 6¼

(Continued on Page 22, Column 1)

KEROTEST

FORGED BRASS COMBINATION GAUGE TESTING OUTFIT



KEROTEST
REGISTERED U. S. PAT. OFF.

A very handy, convenient, compact device for

1—Purging air or gas from high side
2—Charging oil in low side
3—Charging liquid refrigerant in high side
4—Charging gaseous refrigerant into low side
5—Transferring refrigerant from high to low side to check for leaks in system
6—Setting low side controls
7—Setting expansion valves
8—No disagreeable gas odors escape into the room. When test work is finished all gas is pumped from the gauge line into the suction side of the compressor

A hookup diagram showing a few of the many uses of this device is available on request.

LOCAL REPRESENTATIVES
(Stocks Maintained for Immediate Delivery)

Amarillo, Texas - 816 Grant St. . . . . Axtell Company
Atlanta, Ga. - 285 Marietta St. . . . . J. M. Tull Rubber & Supply Co., Inc.
Baltimore, Md. - 108 South Street . . . . . Clendenin Bros., Inc.
Boston, Massachusetts - 110 High Street . . A. E. Borden Company
Cincinnati, Ohio - Burbank St. . . . . Merkel Bros. Co.
Cleveland, Ohio - 1748 East 22nd St. . . . Williams & Company, Inc.
Decatur, Illinois - 133 Williams St. . . . . Field & Shorb Co.
Des Moines, Ia. - W. 11th & D.M.U.R.R. . . C. L. Percival Co.
Fernwood, Miss. - 711 N. Tangipahoa St. . . . Enochs Sales Company
Fort Worth, Texas - 8th & Grove Sts. . . . . Axtell Company
Greensboro, N. C. - 714 W. Market St. . . . Home Appliance Service Co.
Houston, Texas - 734 M & M Bldg. . . . . Lingo-Walter Company
Indianapolis, Ind. - 229 E. South St. . . . . F. H. Langsenkamp Co.
Lubbock, Texas - 900 Avenue H . . . . . Axtell Company
Milwaukee, Wis. - 512 N. Water St. . . . . Chase Brass & Copper Co., Inc.
Minneapolis, Minn. - 145 N. 10th St. . . . Chase Brass & Copper Co., Inc.
Newark, N.J. - Jefferson and Chestnut Sts. . . McIntire Connector Co.
New York, N. Y. - 58 Warren St. . . . . Paramount Electrical Supply Co., Inc.
Philadelphia, Pa. - 1135 Callowhill St. . . . Melchior, Armstrong, Dessau Co., Inc.
Pittsburgh, Pa. - 901 Pennsylvania Ave. . . . Williams & Company, Inc.
Portland, Oregon - 200 North 13th St. . . . Harrison Sales Company
Rockford, Illinois - 305 East State St. . . . . All-Makes Refrigerator Service Co.
San Angelo, Texas - 506 So. Oak St. . . . . Axtell Company
St. Louis, Mo. - 2817 Laclede Ave. . . . . Brass and Copper Sales Company
Seattle, Wash. - 314 Ninth Avenue North . . Harrison Sales Company
Sioux City, Iowa - 2310 East 8th St. . . . . National Refrigeration Service
Springfield, Mass. - 93 Broad St. . . . . Home Utilities Company
Syracuse, N. Y. - 314 W. Fayette St. . . . . Syracuse Supply Company
Washington, D.C. - 308 10th St. N.W. . . . Refrigeration Equipment and Supply Co., Inc.
Wilmington, N.C. - 1012 So. Front St. . . . N. Jacobi Hardware Co.
Winnipeg, Man., Canada - 156 Bell Ave. . . Arctic Ice & Fuel Co., Limited

FACTORY REPRESENTATIVES

Chicago, Ill. . . . . G. C. Taylor, 2317 W. Marquette Road (Local Stock)
Dayton, Ohio . . . . . E. J. Kimm, 517 Grafton Ave.
Detroit, Mich. . . . . Thomas B. McLaughlin, 18273 Santa Rosa Drive
Los Angeles, Calif. . . . Van D. Clothier, 1015 E. Sixteenth St. (Local Stock)
New York, N. Y. . . . . J. A. Strachan, 806 Graybar Building
San Francisco, Calif. . . . A. W. V. Johnson, Merchants Exchange Bldg. (Local Stock)

FOREIGN REPRESENTATIVES

Australia . . . . . George Brown & Co., Ltd., 267 Clarence St., Sydney, N.S.W.
Europe . . . . . Melchior, Armstrong, Dessau Co., Inc., 116 Broad St., New York, N.Y.
Hawaiian Islands . Theo. H. Davies & Co., Ltd., Honolulu, T. H.
Puerto Rico . . . . Refrigeration Supply Co., P.O. Box 328, Puerta de Tierra, San Juan

KEROTEST MFG. CO.
PITTSBURGH PENNA.

JOMOCO

(*Continued from Page 21, Column 5*)

Model No.	R-10
STORAGE CAPACITY	
Gross food storage (cu. ft.)	5.1
Net food storage (cu. ft.)	4.6
No. of shelves	3
Total shelf area (sq. ft.)	9
THICKNESS OF INSULATION (in.)	
Top	2
Side	2
Bottom	2½
COMPRESSOR SPECIFICATIONS	
Compressor capacity (lbs.) I.M.E.	98.4
Motor size (hp.)	1/5
Compressor speed r.p.m.	1725
Compressor bore (in.)	1 1/16
Compressor stroke (in.)	33/64
No. of cylinders	2
PRICE, installed	$99.50
CABINET MATERIALS	
Make of cabinet	Grigsby-Grunow
Material used for frame	Wood
Finish of shelves	Tinned
Material used for breaker strip	Bakelite
Material used for gasket	Rubber
Make of insulation	Insulite
FINISH	
Cabinet finish (exterior)	Elasto lacquer
Cabinet finish (interior)	Porcelain
HARDWARE	
Make of hardware	National Lock
Process of manufacture	Cast
Basic metal of hardware	Bronze
Finish of hardware	Chromium
MOTOR	
Make of motor	General Electric
Type of motor	Capacitor
COMPRESSOR	
Make of compressor	Jomoco
Type of system	Conventional
Type of compressor	Reciprocating
Compressor drive	Direct
Type of shaft seal	Rotary
Location of compressor	Above
REFRIGERANT	
Refrigerant used	Sulphur dioxide
Amount in system	25 oz.
LUBRICATION	
Brand of compressor lubricant	Sunisco
Quantity in system	14 oz.
How often should motor be oiled	Semi-annually
CONTROL	
Make of control	General Electric
Temperature regulation method	Manual
How defrosted	Defrosting cycle on control
EVAPORATOR	
Make of evaporator	Jomoco
Evaporator construction	Shell & tube
Metal used	Copper
Make expansion valve	Detroit Lubricator
Type of ice cube trays	Aluminum
CONDENSER	
Make of condenser	Bush
Method of cooling	Fan
Type of condenser	Finned tube
POLICY	
Guarantee on cabinet	1 year
Guarantee on system	1 year
Serviced by	Dealer & distributor
Are replacement parts sold to independent service companies	Yes

APEX

Apex Electrical Mfg. Co.
1070 E. 152nd St., Cleveland, Ohio

Model No.	P-800	L-800	P-600	L-600	L-500	L-610	L-410
CABINET SPECIFICATIONS							
Overall dimensions (in.)							
Height	57	57	51½	51½	49½	58½	53½
Width	31⅝	31⅝	28⅝	28⅝	26	27¾	24¾
Depth	26½	26½	26½	26½	24¾	25	23
Inside dimensions of liner (in.)							
Height	30	30	24	24	24	31	25½
Width	25	25	21¾	21¾	19¾	22	19¾
Depth	18	18	18	18	16	17½	16
No. of doors	1	1	1	1	1	1	1
STORAGE CAPACITY							
Gross food storage (cu. ft.)	7.8	7.8	5.6	5.6	4.4	6.9	4.6
Net food storage (cu. ft.)	7.0	7.0	4.8	4.8	3.8	6.2	4.0
No. of shelves	5	5	4	4	4	5	4
Total shelf area (sq. ft.)	13.7	13.7	9.1	9.1	7.7	12.2	7.5
ICE CUBE TRAYS							
No. of trays	4	4	3	3	2	3	2
No. of cubes produced	112	112	84	84	56	84	56
Weight of cubes (lbs.)	7	7	5¼	5¼	3½	5¼	3½
THICKNESS OF INSULATION (in.)							
Top	2½	2½	2½	2½	2½	2¼	2
Side	2½	2½	2½	2½	2½	2¼	2
Bottom	2½	2½	2½	2½	2½	2¼	2
COMPRESSOR SPECIFICATIONS							
Compressor capacity (lbs.) I.M.E.	110	110	95	95	95	95	80
Motor size (hp.)	1/6	1/6	1/6	1/6	1/6	1/6	1/6
Compressor speed r.p.m.	520	520	460	460	460	460	410
Compressor bore (in.)	1⅜	1⅜	1⅜	1⅜	1⅜	1⅜	1⅜
Compressor stroke (in.)	1½	1½	1½	1½	1½	1½	1½
No. of cylinders	1	1	1	1	1	1	1
WEIGHT, net (lbs.)	448	398	382	334	322	320	267

* * *

CABINET MATERIALS	
Material used for frame	Steel & wood
Finish of shelves	Galvanized
Material used for breaker strip	Panelyte
Material used for gasket	Rubber
Make of insulation	Models L-610 & L-410—Balsam Wool; others—Celotex
FINISH	
Cabinet finish (exterior)	P-600 & P-800—porcelain; others—lacquer
Cabinet finish (interior)	Porcelain
HARDWARE	
Process of manufacture	Models L-610 & L-410—stamped; others—forged
Basic metal of hardware	Brass
Finish of hardware	Chromium
COMPRESSOR	
Make of compressor	Apex
Type of system	Conventional
Type of compressor	Reciprocating
Compressor drive	V-belt
Type of shaft seal	Sylphon
Location of compressor	Below
REFRIGERANT	
Refrigerant used	Sulphur dioxide
Amount in system	Models P-800 & L-800—5 lbs.; P-600 & L-600—4½ lbs.; L-500—4 lbs.; L-610 & L-410—1½ lbs.
LUBRICATION	
Brand of compressor lubricant	Sun Oil No. 2
Quantity in system	8 oz.
How often should motor be oiled	Annually
CONTROL	
Make of control	Penn
Type of control	Temperature
Temperature regulation method	Manual
How defrosted	Shut down unit
MOTOR	
Make of motor	Apex
Type of motor	Capacitor
EVAPORATOR	
Make of evaporator	Mullins & Apex
Evaporator construction	Models L-610 & L-410—alcohol brine tank; others—shell
Metal used	Models L-610 & L-410—copper; others—steel
Make of expansion valve	Fisher on models L-610 & L-410
Type of refrigerant control	Low side float on P-800, L-800, P-600, L-600, L-500
Type of ice cube trays	Aluminum; models P-800, L-800, P-600, L-600, & L-500 one Flexotray
CONDENSER	
Make of condenser	Bush
Method of cooling	Fan
Type of condenser	Finned tube
SPECIAL FEATURES	
Models P-800, L-800, P-600, L-600, & L-500 have electric light.	

GRAYBAR ILG-KOLD

Ilg Electric Ventilating Co.
2850 N. Crawford Ave., Chicago, Ill.

Model No.	45-L	55-L	65-L	85-L	65-P	85-P
CABINET SPECIFICATIONS						
Overall dimensions (in.)						
Height	53⅞	56¼	61	62	61	62
Width	24⅜	26⅜	30½	31¾	30½	31¾
Depth	22⅛	24¾	24⅞	27⅞	24⅞	27⅞
Inside dimensions of liner (in.)						
Height	26¾	29¼	32	33	32	33
Width	19⅝	20⅜	23½	34¾	23½	34¾
Depth	16	17	16	18⅞	16	18⅞
No. of doors	1	1	1	1	1	1
STORAGE CAPACITY						
Gross food storage (cu. ft.)	4.8	5.88	6.98	8.98	6.98	8.98
Net food storage (cu. ft.)	4.5	5.50	6.50	8.50	6.50	8.50
No. of shelves	5	5	6	6	6	6
Total shelf area (sq. ft.)	8.6	10.21	13.50	14.20	13.50	14.20
ICE CUBE TRAYS						
No. of trays	2	3	3	4	3	4
No. of cubes produced	42	63	84	105	84	105
Weight of cubes (lbs.)	4	6	8	10	8	10
THICKNESS OF INSULATION (in.)						
Top	2	2	3	3	3	3
Side	2	2½	3	3	3	3
Bottom	2	2	3	3	3	3
COMPRESSOR SPECIFICATIONS						
Motor size (hp.)	1/6	1/6	1/6	1/6	1/6	1/6
Compressor speed r.p.m.	280	280	280	280	280	280
Compressor bore (in.)	1½	1½	1½	1½	1½	1½
No. of cylinders	1	1	1	1	1	1
WEIGHT, net (lbs.)	250	275	305	325	358	400

CABINET MATERIALS	
Make of cabinet	Seeger
Materials used for frame	Steel & wood
Finish of shelves	Tinned
Material for breaker strip	Composition
Material used for gasket	Rubber
FINISH	
Cabinet finish (exterior)	L models—lacquer; P models—porcelain
Cabinet finish (interior)	Porcelain
HARDWARE	
Process of manufacture	Cast
Basic metal of hardware	Brass
Finish of hardware	Chromium
MOTOR	
Make of motor	Ilg
Type of motor	Capacitor
COMPRESSOR	
Make of compressor	Ilg
Type of system	Conventional
Type of compressor	Reciprocating
Compressor drive	V-belt
Type of shaft seal	Floating ground ring
Location of compressor	Below
REFRIGERANT	
Refrigerant used	Isobutane
Amount in system	10 oz.
LUBRICATION	
Quantity in system	1¼ pts.
How often should motor be oiled	Semi-annually
CONTROL	
Type of control	Temperature
Temperature regulation method	Automatic
How defrosted	Push-button switch
EVAPORATOR	
Make of evaporator	Ilg
Evaporator construction	Continuous tube in cast aluminum alloy
Metal used	Copper & aluminum alloy
Type of refrigerant control	Expansion valve
Type of ice cube trays	Aluminum
CONDENSER	
Method of cooling	Fan
Type of condenser	Finned tube
SPECIAL FEATURES	
Electric light in porcelain models.	
POLICY	
Guarantee on cabinet	1 & 3 years
Guarantee on system	1 & 3 years
Serviced by	Dealer & distributor

TRUKOLD

Montgomery Ward & Co., Chicago, Ill.

Model No.	ML480	ML657	ML872	MP480	MP657	MP872	M450	M4021
CABINET SPECIFICATIONS								
Overall dimensions (in.)								
Height	52¼	55¼	57⅜	52¼	55	57¾	47¾	50¾
Width	23⅞	28⅛	34⅛	23⅞	28⅛	34⅛	23⅞	21½
Depth	27⅝	27⅞	28⅝	27⅝	27⅝	28⅝	....	....
Inside dimensions of liner (in.)								
Height	27¼	30	32¾	27¼	30	32¾	23¾	27¼
Width	17⅜	21⅝	26⅝	17⅜	21⅝	26⅝	23¼	17
Depth	17	17	17	17	17	17	18⅜	17⅞
No. of doors	1	1	1	1	1	1	1	1
STORAGE CAPACITY								
Gross food storage (cu. ft.)	4.80	6.57	8.72	4.80	6.57	8.72	4.59	4.87
Net food storage (cu. ft.)	4.19	5.78	7.85	4.19	5.78	7.85	4.00	4.13
No. of shelves	3	4	4	3	4	4	2	....
Total shelf area (sq. ft.)	7.38	9.38	14.08	7.38	9.38	14.08	7.00	6.82
ICE CUBE TRAYS								
No. of trays	3	5	6	3	5	6	2	3
No. of cubes produced	63	105	126	63	105	126	42	63
Weight of cubes (lbs.)	3¾	6¼	7½	3¾	6¼	7½	3	....
THICKNESS OF INSULATION (in.)								
Top	2	2	2	2	2	2	2	2
Side	3	2½	3½	3	2½	3½	2½	2
Bottom	3	3	3½	3	3	3½	3	2
COMPRESSOR SPECIFICATIONS								
Motor size (hp.)	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5
Compressor speed r.p.m.	1740	1740	1740	1740	1740	1740	1740	1740
Compressor bore (in.)	1 1/16							
Compressor stroke (in.)	⅝	⅝	⅝	⅝	⅝	⅝	⅝	⅝
No. of cylinders	2	2	2	2	2	2	2	2

* * *

CABINET MATERIALS	
Make of cabinet	Gibson
Material used for frame	Steel
Finish of shelves	Tinned
Material used for breaker strip	Masonite
Material used for gasket	Rubber
Make of gasket	Miller
Make of insulation	Balsam Wool
FINISH	
Cabinet finish (exterior)	ML models—lacquer; MP models—porcelain
Cabinet finish (interior)	Porcelain
HARDWARE	
Make of hardware	Grand Rapids Brass
Process of manufacture	Stamped
Basic metal of hardware	Brass
Finish of hardware	Chromium
MOTOR	
Make of motor	Delco
Type of motor	Capacitor-start
COMPRESSOR	
Make of compressor	Gibson
Type of system	Conventional
Type of compressor	Reciprocating
Compressor drive	Direct
Type of shaft seal	Bellows
Location of compressor	Above
REFRIGERANT	
Refrigerant used	Sulphur dioxide
Amount in system	25 oz.
LUBRICATION	
Brand of compressor lubricant	Sunisco
Quantity in system	14 oz.
How often should motor be oiled	Semi-annually
CONTROL	
Make of control	Ranco
Type of control	Temperature
Temperature regulation method	Manual
How defrosted	Semi-automatic
EVAPORATOR	
Make of evaporator	Gibson
Evaporator construction	Tubular
Metal used	Brass & copper
Make of expansion valve	American Radiator
Type of ice cube trays	Aluminum
CONDENSER	
Make of condenser	Bush or McCord
Method of cooling	Fan
Type of condenser	Finned tube
SPECIAL FEATURES	
Electric light and door opener.	

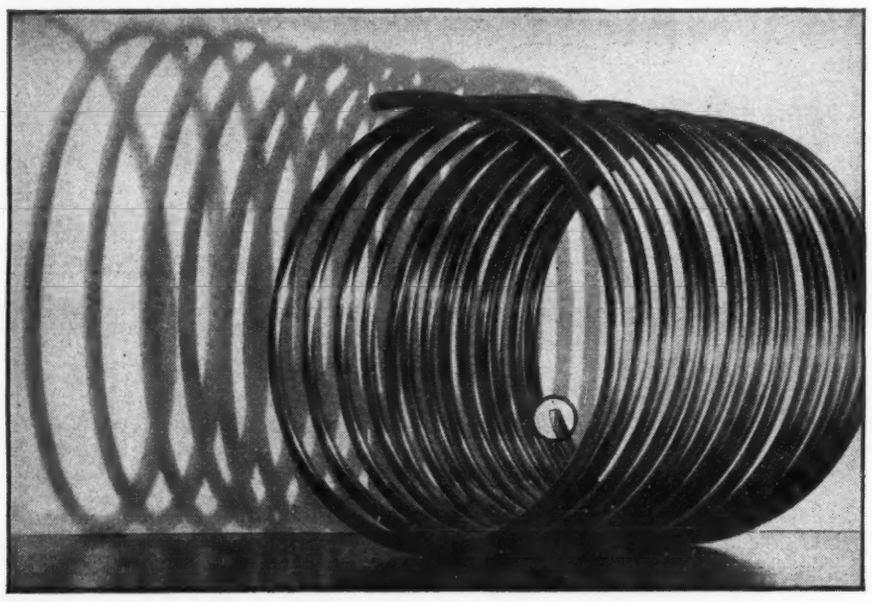
STANDARD

Standard Refrigerator Co.
110 South Brooke St., Fond du Lac, Wis.

Model No.	533	633	833
CABINET SPECIFICATIONS			
Overall dimensions (in.)			
Height	53¾	54⅝	56⅞
Width	25½	28¾	35
Depth	27½	27¾	27½
Inside dimensions of liner (in.)			
Height	27	27½	31½
Width	19⅞	23¼	27¾
Depth	17	17¼	16¼
No. of doors	1	1	2
STORAGE CAPACITY			
Gross food storage (cu. ft.)	5.33	6.5	8.75
Net food storage (cu. ft.)	5.0	6.0	8.0
No. of shelves	3	3	4
Total shelf area (sq. ft.)	6.7	8.0	11.5
ICE CUBE TRAYS			
No. of trays	3	4	5
No. of cubes produced	63	84	105
THICKNESS OF INSULATION (in.)			
Top	2½	2½	3
Side	2½	2½	3
Bottom	2½	2½	3
COMPRESSOR SPECIFICATIONS			
Compressor capacity (lbs.) I.M.E. (approx.)	135	135	135
Motor size (hp.)	1/6	1/6	1/6
Compressor speed r.p.m.	1725	1725	1725
Compressor bore (in.)	1⅝	1⅝	1⅝
Compressor stroke (in.)	½	½	½
No. of cylinders	1	1	1
PRICE f.o.b.	$89.50	$104.50	$109.50

CABINET MATERIALS	
Make of cabinet	Standard
Material used for frame	Wood & steel
Finish of shelves	Tinned
Material used for breaker strip	Bakelite
Material used for gasket	Rubber
Make of gasket	Miller
Make of insulation	Rock Wool
FINISH	
Cabinet finish (exterior)	Lacquer
Cabinet finish (interior)	Porcelain

(*Continued on Page 23, Column 1*)



FRENCH TUBES to fill every standard and special need

THERE ARE French Copper Refrigeration Tubes . . . small diameter and thin wall seamless tubes . . . for every refrigeration requirement.

Stock sizes are 1/4 in., 3/8 in., 7/16 in., 1/2 in., 5/8 in., and 3/4 in., all in .035 in. gauge. Heavier gauges can be made to order. Stock coils are 25, 50 and 100 feet long. Longer lengths can be supplied at short notice.

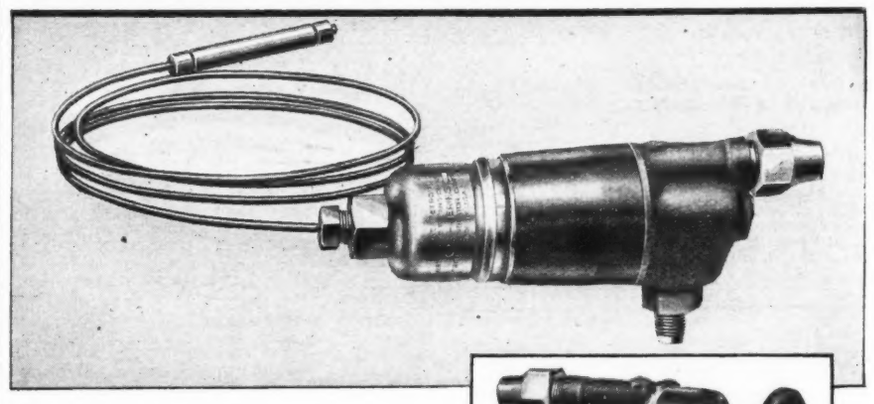
French Deluxe Copper Refrigeration Tubes are free from oxide and foreign matter. Each coil is *completely* dehydrated sealed, rigidly tested and reaches you ready for use. For manufacturers who prefer to do their own dehydrating, the French Manufacturing Company produces copper tubes dried (commercially dehydrated), with either open or closed ends.

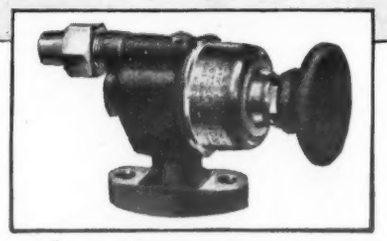
All French Copper Refrigeration Tubes possess the requisite properties for lasting, dependable service. Their grain structure is uniform. This important quality is in every coil because highest metallurgical skill, long manufacturing experience and only the best of raw material go into their production. Additional information will be furnished upon request.

THE FRENCH MANUFACTURING CO.
General Offices: Waterbury, Connecticut

FRENCH REFRIGERATION TUBES

"GENUINE DETROIT" No. 673 THERMOSTATIC EXPANSION VALVE



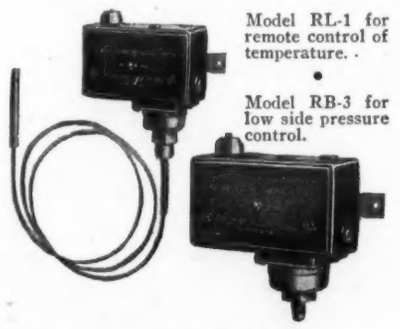


NO. 672 AUTOMATIC EXPANSION VALVE

"GENUINE DETROIT" CONTROLS *for all types of Refrigeration*

Accepted as standard by most manufacturers, the "Genuine Detroit" No. 673 Thermostatic Expansion Valve is a sensitive, moist-proof control, which keeps the coil full of refrigerant without possibility of frost-back. No. 672 Automatic Expansion Valves are simple, compact, easily adjusted and have only one moving part.

No. 250 "Genuine Detroit" Refrigeration Control Switches for commercial work are accurate, dependable, easy to install and adjust. Model RL-1 is for romote temperature control — Model RB-3 for low side pressure control—Model RIBA for low side pressure control with high side cutout—RIBL for remote control of temperature and high side cutout. Write today for Bulletins A-60, A-51, A-40B



Model RL-1 for remote control of temperature.

Model RB-3 for low side pressure control.

DETROIT LUBRICATOR COMPANY
Trumbull, Lincoln, Marquette & Viaduct
DETROIT, Mich., U. S. A.

Lubricators • Carburetors • Valves • Automatic Controls for temperature, pressure, humidity. • Refrigeration, Oil Burner and Heating Accessories

● YOUR UNIT DESERVES "GENUINE DETROIT" CONTROLS ●

STANDARD

(Continued from Page 22, Column 5)

HARDWARE
Process of manufacture.....Stamping
Basic metal of hardware.....Brass
Finish of hardware.....Chromium

MOTOR
Make of motor.....Wagner
Type of motor.....Capacitor

COMPRESSOR
Make of compressor.....Standard
Type of system.....Hermetically sealed
Type of compressor.....Reciprocating
Compressor drive.....Direct
Type of shaft seal.....None
Location of compressor.....Above

REFRIGERANT
Refrigerant used.....Sulphur dioxide
Trade name.....Ansul
Amount in system.....4 lbs.

LUBRICANT
Brand of compressor lubricant.Vacuum oil
Quantity in system.....64 liquid oz.
How often should motor be oiled...Never

CONTROL
Make of control.....Cutler-Hammer
Type of control.....Temperature
Temperature regulation method....Manual
How defrosted.....Shut off switch

EVAPORATOR
Make of evaporator.....Fedders
Evaporator construction.....Tubular
Metal used.....Copper
Type of refrigerant control.High side float
Type of ice cube trays.....Aluminum

CONDENSER
Make of condenser.....Bush
Method of cooling.....Fan
Type of condenser.....Finned tube

SPECIAL FEATURES
Model 833—interior light.

POLICY
Guarantee on cabinet.....2 years
Guarantee on system.....2 years
Serviced by....Distributor, dealer, factory
Are replacement parts sold to independent service companies.....No

GRUNOW

Grunow Corp.
4127 George St., Chicago, Ill.

Model No.	50	60	75
CABINET SPECIFICATIONS			
Overall dimensions (in.)			
Height	56⅝	58¾	62¼
Width	24½	29⅜	31¼
Depth	25¾	25¾	25¾
Inside dimensions of liner (in.)			
Height	31¼	32⅛	36
Width	19¼	23	25
Depth	17¼	16¾	16¾
No. of doors	1	1	1
STORAGE CAPACITY			
Gross food storage (cu. ft.)	6.01	7.18	8.73
Net food storage (cu. ft.)	5.0	6.0	7.6
Number of shelves	4	5	5
Total shelf area (sq. ft.)	9.49	13.03	15.54
ICE CUBE TRAYS			
No. of trays	2	3	3
No. of cubes produced	84	112	112
COMPRESSOR SPECIFICATIONS			
Compressor capacity (lbs. 24 hrs. 14° F.)	110	110	110
Motor size (hp.)	1/5	1/5	1/5

CABINET MATERIALS
Make of cabinet.....Briggs
Material used for frame.....Steel

FINISH
Cabinet finish (exterior).....Lacquer
Cabinet finish (interior).....Porcelain

EVAPORATOR
Evaporator construction.....Shell & tube
Type of refrigerant control.....Low side float

REFRIGERANT
Refrigerant used.....Carrene (CH_2Cl_2)

CONDENSER
Make of condenser.....McCord
Method of cooling.....Fan
Type of condenser.....Finned tube

COMPRESSOR
Make of compressor.....Grunow
Type of system.....Conventional
Type of compressor.....Rotary
Compressor drive.....Direct
Location of compressor.....Below

MOTOR
Type of motor.....Capacitor

CONTROL
Make of control.....Cutler-Hammer
Type of control.....Temperature
Temperature regulation method..Manual
How defrosted.....Shut down unit

SPECIAL FEATURES
Interior electric light.

POLICY
Guarantee on cabinet.....1 year
Guarantee on system.....1 year
Serviced by.....Dealer

Testing Service

for Domestic and Commercial Electric Refrigeration

Testing and experimental laboratory service for Manufacturer, Distributor, Central Station. Test data exclusive property of client.

Electrical Testing Laboratories
80th St. & East End Ave.
New York

LOWEST

Prices on hard and semi-hard rubber Gliders - Strips - Moldings - Lid Rings and Lid Knobs, etc.

Let us bid on your specifications NOW!

VULCANIZED RUBBER CO.
261 Fifth Avenue
New York, New York
Established 1879

NORGE

Norge Corp., 658 E. Woodbridge Ave., Detroit, Mich.

Model No.	A-44	D-66	J JP	K KP	M	R	W
CABINET SPECIFICATIONS							
Overall dimensions (in.)							
Height	50⅝	58¾	54⅝	58⅞	60⅞	60⅞	60⅞
Width	24¼	28⅞	26⅞	29½	32½	40⅞	48⅝
Depth	24⅛	26⅝	27⅛	27⅛	29	29	29
Inside dimensions of liner (in.)							
Height	25⅞	32⅛	26⅞	31	32	31½	31½
Width	20¼	22⅝	22	22⅝	24⅝	33	40¾
Depth	16⅞	18¼	17¼	17¼	18¼	17¼	17¼
No. of doors	1	1	1	1	1	2	2
STORAGE CAPACITY							
Gross food storage (cu. ft.)	5.10	7.46	5.88	7.23	8.35	10.38	12.81
Net food storage (cu. ft.)	4.40	6.62	5.17	6.06	7.14	9.08	11.05
No. of shelves	3	4	3	4	4	6	6
Total shelf area (sq. ft.)	8.88	14.32	10.23	12.90	14.19	19.27	22.42
ICE CUBE TRAYS							
No. of trays	2	3	2	4	4	4	8
No. of cubes produced	42	63	42	84	84	84	72
Weight of cubes (lbs.)	4½	6¾	4½	9	9	9	14½
COMPRESSOR SPECIFICATIONS							
Motor size (hp.)	1/6	1/5	1/6	1/5	1/5	1/4	1/4

* * *

CABINET MATERIALS
Make of cabinet.....Norge
Material used for frame.....Wood
Finish of shelves.....Tinned
Material used for breaker strip.....Wood
Material used for gasket.....Rubber

FINISH
Cabinet finish (exterior)....JP, KP, M, R, and W models—porcelain; others—lacquer
Cabinet finish (interior).....Porcelain

HARDWARE
Process of manufacture.....Stamped & Forged
Basic metal of hardware.....Brass
Finish of hardware.....Chromium

COMPRESSOR
Make of compressor.....Norge
Type of system.....Conventional
Type of compressor.....Rotary
Compressor drive.....Belt
Type of shaft seal.....Bellows
Location of compressor.....Below

CONTROL
Type of control.....Temperature
Temperature regulation method....Manual
How defrosted.....Defrosting position on control

MAYFLOWER

Trupar Mfg. Co., Dayton, Ohio

Model No.	G-45	G-5	GP-5	G-6	GP-6	G-7	GP-7	GP-11
CABINET SPECIFICATIONS								
Overall dimensions (in.)								
Height	53½	56⅜	56⅜	57½	57½	60	60	64⅝
Width	24	26¾	26¾	29	29	30½	30¼	46
Depth	20¼	22½	22½	23½	23½	24¾	24¾	24
Inside dimensions of liner (in.)								
Height	27	30¾	30¾	31¾	31¾	34¼	34¼	34¾
Width	19¼	20	20	21¼	21¼	22¼	22¼	37½
Depth	16	16¼	16¼	17⅛	17⅛	17⅝	17⅝	16½
No. of doors	1	1	1	1	1	1	1	2
STORAGE CAPACITY								
Gross food storage (cu. ft.)	4.8	5.7	5.7	6.6	6.6	7.8	7.8	12.4
Net food storage (cu. ft.)	4.5	5.0	5.0	6.0	6.0	7.0	7.0	11.3
No. of shelves	4	4	4	5	5	5	5	5
Total shelf area (sq. ft.)	9.0	10.0	10.0	12.0	12.0	13.5	13.5	21.0
ICE CUBE TRAYS								
No. of trays	2	3	3	3	3	4	4	6
No. of cubes produced	56	84	84	84	84	112	112	168
Weight of cubes (lbs.)	4¾	7⅛	7⅛	7⅛	7⅛	9½	9½	14¼
THICKNESS OF INSULATION (in.)								
Top	2⅜	3	3	3	3	3	3	4½
Side	2	3	3	3½	3½	3½	3½	3½
Bottom	2½	3	3	3½	3½	3½	3½	4
COMPRESSOR SPECIFICATIONS								
Compressor capacity (lbs.) I.M.E.	90	90	100	125	125	125	125	140
Motor size (hp.)	1/6	1/6	1/6	1/5	1/5	1/5	1/5	1/4
Compressor speed r.p.m.	415	415	260	310	310	310	310	415
Compressor bore (in.)	1⅜	1⅜	1⅜	1⅜	1⅜	1⅜	1⅜	1⅜
Compressor stroke (in.)	1¾	1¾	1¾	1¾	1¾	1¾	1¾	1¾
No. of cylinders	1	1	2	2	2	2	2	2
WEIGHT, net (lbs.)	260	325	365	360	403	438	475	645

* * *

CABINET MATERIALS
Make of cabinet.....Rex
Material used for frame.....Steel
Finish of shelves.....Tinned
Material used for breaker strip...Panelyte
Material used for gasket.....Rubber
Make of insulation.....Balsam Wool

FINISH
Cabinet finish (exterior).....GP models—porcelain; G models—lacquer
Cabinet finish (interior).....Porcelain

HARDWARE
Make of hardware....Grand Rapids Brass
Process of manufacture.....Stamped
Basic metal of hardware.....Brass
Finish of hardware.....Chromium

MOTOR
Make of motor.....Master, Delco, & G. E.
Type of motor.....Repulsion-Induction

COMPRESSOR
Make of compressor.....Trupar
Type of system.....Conventional
Type of compressor.....Reciprocating
Compressor drive.....Belt
Location of compressor.....Below

LUBRICATION
Brand compressor lubricant..Sunisco No. 3
Quantity in system.....Models G-45 & G-5 —485 c.c.; GP-11—730 c.c.; others—605 c.c.
How often should motor be oiled...Every 3 years

REFRIGERANT
Refrigerant used.....Sulphur dioxide
Amount in system.....GP-11—8 lbs.; G-7 & GP-7—5.5 lbs.; others—4.5 lbs.

CONTROL
Make of control.....Ranco
Type of control.....Temperature
Temperature regulation method....Manual
How defrosted.....By turning control to "Defrosting" position

EVAPORATOR
Make of evaporator.....Mullins
Evaporator construction.....Shell
Metal used.....Steel, finished in porcelain
Type of refrigerant control..Low side float
Type of ice cube trays.....Aluminum, one Flexotray in all but models G-45 & G-5

CONDENSER
Make of condenser.....McCord
Method of cooling.....Fan
Type of condenser.....Finned tube

SPECIAL FEATURES
Electric light, vegetable tray, and water-cooling bottle in all models but G-45 & G-5; GP models—door opener.

POLICY
Guarantee of cabinet.....1 year
Guarantee on system.....1 year
Serviced by.....Distributors, dealers
Are replacement parts sold to independent service companies.....No

ZEROZONE

Zerozone Corp.
205 E. 42nd St., New York City, N. Y.

Model No.	55	66	77	505	606	707	808
CABINET SPECIFICATIONS							
Overall dimensions (in.)							
Height	55¼	60¼	62	55½	60½	62¼	63½
Width	24½	26½	31⅛	24½	27½	32⅛	37
Depth	22⅞	22⅞	24⅞	22⅞	23⅞	25⅞	26⅞
Inside dimensions of liner (in.)							
Height	26	31	31	26	31	31	31
Width	19½	20¾	24⅜	19½	20¾	24⅜	27¼
Depth	15¾	15¾	15¾	15¾	15¾	15¾	16½
No. of doors	1	1	1	1	1	1	2
STORAGE CAPACITY							
Gross food storage (cu. ft.)	4.6	6.0	6.8	4.6	6.0	6.8	8.0
Net food storage (cu. ft.)	4.0	5.3	6.1	4.0	5.3	6.1	7.2
No. of shelves	4	4	4	4	4	4	4
Total shelf area (sq. ft.)	8.0	8.5	10.2	8.3	9.0	10.8	14.0
ICE CUBE TRAYS							
No. of trays	2	3	3	2	3	4	5
No. of cubes produced	54	81	81	54	81	108	135
Weight of cubes (lbs.)	4	6	6	4	6	8	10
THICKNESS OF INSULATION (in.)							
Top	2½	2½	3¼	2½	2½	3¼	4
Side	2	2½	3½	2	2½	3½	4
Bottom	2	2½	3½	2	2½	3½	4
COMPRESSOR SPECIFICATIONS							
Compressor capacity (lbs.) I.M.E.	85	107	107	85	107	107	107
Motor size (hp.)	1/8	1/6	1/6	1/8	1/6	1/6	1/6
Compressor speed r.p.m.	400	500	500	400	500	500	500
Compressor bore (in.)	1½	1½	1½	1½	1½	1½	1½
Compressor stroke (in.)	1⅝	1⅝	1⅝	1⅝	1⅝	1⅝	1⅝
No. of cylinders	1	1	1	1	1	1	1

* * *

CABINET MATERIALS
Make of cabinet.....Zerozone
Material used for frame.....Steel
Finish of shelves.....Tinned
Material used for breaker strip....Models 55, 66, 77—Tylac; others—Bakelite
Material used for gasket.....Rubber

FINISH
Cabinet finish (exterior).....Lacquer
Cabinet finish (interior).....Porcelain

HARDWARE
Process of manufacture.....Stamped
Basic metal of hardware.....Brass
Finish of hardware.....Chromium

MOTOR
Type of motor.....Capacitor

REFRIGERANT
Refrigerant used.....Sulphur dioxide
Trade name.....Ansul
Amount in system.....4¼ lbs.

LUBRICATION
Brand of compressor lubricant....Sunisco
Quantity in system.....1 pint
How often should motor be oiled....Semi-annually

COMPRESSOR
Make of compressor.....Zerozone
Type of system.....Conventional
Type of compressor.....Reciprocating
Compressor drive.....Belt
Type of shaft seal.....Bellows
Location of compressor.....Below

CONTROL
Type of control.....Temperature
Temperature regulation method....Manual
How defrosted.....Defrosting cycle

EVAPORATOR
Make of evaporator.....Zerozone
Evaporator construction.....Tubular
Metal used.....Copper
Type of refrigerant control..Low side float
Type of ice cube trays.....Aluminum

CONDENSER
Method of cooling.....Fan
Type of condenser.....Finned tube

POLICY
Guarantee on cabinet.....1 year
Guarantee on system.....1 year
Serviced by.....Distributor & factory
Are replacement parts sold to independent service companies.....Yes

REFRIGERANT
Refrigerant used.....Sulphur dioxide

MOTOR
Type of motor.....Capacitor-start

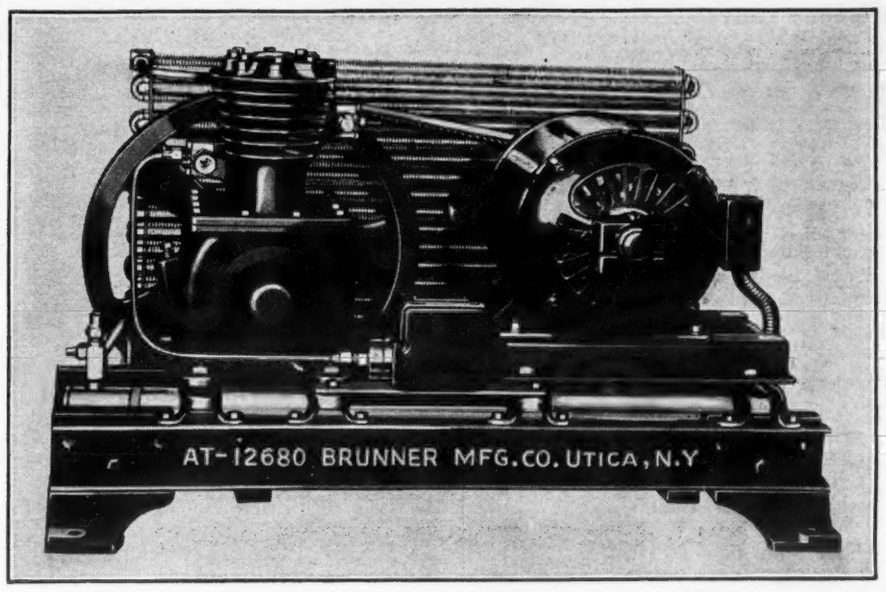
EVAPORATOR
Make of evaporator.....Norge
Evaporator construction.....W—tubular; others—shell & tube
Metal used.....Copper
Type of refrigerant control.....Low side float
Type of ice cube trays.....Aluminum

CONDENSER
Method of cooling.....Fan
Type of condenser.....Finned tube

SPECIAL FEATURES
Model W—water bottle.

POLICY
Guarantee on cabinet.....1 year
Guarantee on system.....1 year
Serviced by.....Dealer, distributor
Are replacement parts sold to independent service companies.....No

Refrigerating **BRUNNER** Equipment



Have you heard of **BRUNNER'S NEW SALES PLAN?**

A policy revolutionary in its application, yet one that actually gets the business.

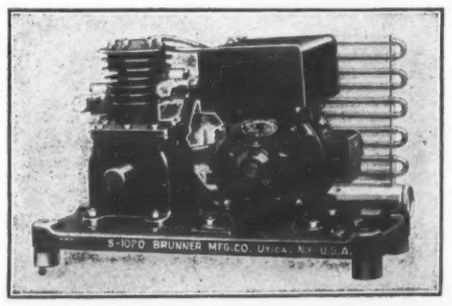
It puts Distributors in a position to profitably handle business that heretofore could not be had.

This is a policy in tune with the times—it's different. There is no other proposition like it. You must know the whole story to fully grasp the possibilities offered in BRUNNER'S exclusive Distributor Franchise.

The line includes four dependable Compressors fifteen efficient High Sides—air and water cooled—gas engine and electric—in a range of ⅙-H. P. to 1½ H. P.—Commercial and Domestic Low Sides too.

Some desirable territories are still open, but may be closed soon. If you are interested in a genuinely profitable Distributors' Franchise, we suggest that you act quickly.

BRUNNER MANUFACTURING CO.
REFRIGERATION DIVISION
UTICA, N. Y.



Our New Price List Is Effective Today

BRUNNER
A name built by 27 years of service

BRUNNER MFG. CO., UTICA, N. Y.
Gentlemen:
Send full particulars of your 1933 line Refrigerating Equipment. Our letterhead attached.

Firm Name.....

Individual..... Title.....

Street..... City.....

POTTER

Tricold Refrigerator Corp., 296 Delaware Ave., Buffalo, N. Y.

Model No.	L-88	L-107	L-134	L-160	L-190
CABINET SPECIFICATIONS					
Overall dimensions (in.)					
Height	51⅞	57¾	63	65½	71
Width	24	30	30	34	34
Depth	23¾	25½	25½	25½	25½
Inside dimensions of liner (in.)					
	*U.C. L.C.	U.C. L.C.	U.C. L.C.	U.C. L.C.	U.C. L.C.
Height	16¼ 8½	17¼ 9	22¼ 9	22¼ 10½	27½ 10½
Width	19 16	24 20	24 20	28 24	28 24
Depth	16 15	16 15	16 15	16 15	16 15
No. of doors	1	1	1	2	2
STORAGE CAPACITY					
No. of shelves	3	3	4	4	5
Total shelf area (sq. ft.)	9	10.73	13.4	16.0	19.25
ICE CUBE TRAYS					
No. of trays	3	3	3	4	4
No. of cubes produced	84	84	84	112	112
Weight of cubes (lbs.)	6	6	6	8	8
THICKNESS OF INSULATION (in.)					
	*U.C. L.C.	U.C. L.C.	U.C. L.C.	U.C. L.C.	U.C. L.C.
Top	2¼	3	3	3	3 ....
Side	2¼ 3¾	3 4½	3 4½	3 4½	3 4½
Bottom	 4	 5	 5	 5	 5
COMPRESSOR SPECIFICATIONS					
Compressor capacity (lbs.) I.M.E.	120	120	120	166	166
Motor size (hp.)	1/6	1/6	1/6	1/4	1/4
Compressor speed r.p.m.	430	430	430	430	430
Compressor bore (in.)	1½	1½	1½	1¾	1¾
Compressor stroke (in.)	1¼	1¼	1¼	1¼	1¼
No. of cylinders	1	1	1	1	1
PRICE, installed	$167	$254	$319	$397	$474
WEIGHT, total shipping (lbs.)	355	455	500	560	585

* * *

CABINET MATERIALS
Make of cabinet .....Rex
Finish of shelves .....Porcelain
Material used for breaker strip...Bakelite
Material used for gasket .....Rubber
Make of insulation.....Balsam Wool

FINISH
Cabinet finish (exterior) .....Lacquer or porcelain (optional)
Cabinet finish (interior) .....Porcelain

HARDWARE
Make of hardware....Grand Rapids Brass
Process of manufacture ..Cast & stamped
Basic metal of hardware .....Brass
Finish of hardware .....Chromium

MOTOR
Make of motor .....Howell
Type of motor .....Capacitor

COMPRESSOR
Make of compressor ....Universal Cooler
Type of system .....Conventional
Type of compressor .....Reciprocating
Compressor drive .....Belt
Type of shaft seal .....Bellows
Location of compressor .....Below

REFRIGERANT
Refrigerant used .....Methyl chloride
Trade name .....Artic
Amount in system..Models L-160 & L-190 1½ lbs.; others—1 lb.

LUBRICATION
Brand of compressor lubricant.....Argon
Quantity in system.....¾ pt.
How often should motor be oiled..Every 3 months

CONTROL
Make of control .....Penn
Type of control .....Temperature
Temperature regulation method ....Fixed

EVAPORATOR
Make of evaporator .....Potter
Evaporator construction..First evaporator —continuous coil in cast aluminum finned plates; second evaporator—continuous large area finned coil
Metal used .....Aluminum & copper
Make of expansion valve.....Detroit Lubricator
Type of ice cube trays....Aluminum, one rubber tray in each

CONDENSER
Make of condenser .....Bush
Method of cooling .....Fan
Type of condenser .....Finned tube

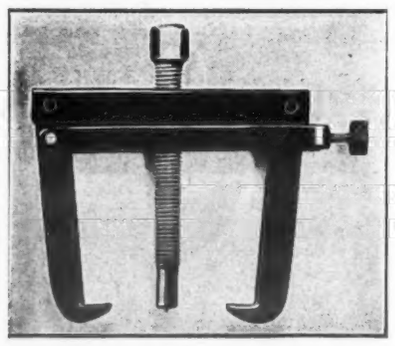
SPECIAL FEATURES
Electric light; porcelain shelves; two-way door latch; lower compartment maintains low temperatures for frozen foods.

POLICY
Guarantee on cabinet .....1 year
Guarantee on system .....1 year
Serviced by .....Distributor or dealer
Are replacement parts sold to independent service companies .....Yes

*U.C.—upper compartment
L.C.—lower compartment

UNIVERSAL REFRIGERATOR FLY WHEEL PULLER

No. 367 **Price $5.90**



Puller, light to carry in tool kit, yet sturdy enough to handle fly wheels from 6" diameter to 18", by gripping between the spokes to the hub. When the tool is put in place, a locking side screw prevents it from slipping. Weight 3 lbs.

NATIONAL MACHINE & TOOL CO.
Jackson, Michigan

LID KNOBS and RINGS

Are you buying Lid Rings and Knobs at 1933 Prices?

Our values will be apparent to you.

Moldings and Strips Too.

Let us estimate on your Blue Prints for any Hard or Semi-Hard Rubber Parts.

VULCANIZED RUBBER CO.
261 Fifth Avenue
New York, New York
Established 1879

UNIVERSAL COOLER

Universal Cooler Corp.
7424 Melville Ave., Detroit, Mich.

Model No.	LP-3.5	LP-4.5	LP-5.5	LP-6.5	P-5.5	P-6.5
CABINET SPECIFICATIONS						
Overall dimensions (in.)						
Height	51⅝	54½	57⅛	60⅞	57⅛	60⅞
Width	23	26⅝	28⅛	35⅝	28⅛	35⅛
Depth	20½	25¼	25¼	25⅞	25¼	25⅞
Inside dimensions of liner (in.)						
Height	25¼	26	29	30	29	30
Width	18½	20½	22	29	22	29
Depth	25½	18½	18½	19	18½	19
No. of doors	1	1	1	2	1	2
STORAGE CAPACITY						
Gross food storage (cu. ft.)	4.24	5.70	6.83	9.56	6.83	9.56
Net food storage (cu. ft.)	3.75	4.75	5.50	7.85	5.50	7.85
No. of shelves	3	3	3	4	3	4
Total shelf area (sq. ft.)	6.70	8.50	10.20	13.50	10.20	13.50
ICE CUBE TRAYS						
No. of trays	2	3	4	4	4	4
No. of cubes produced	36	84	112	112	112	112
Weight of cubes (lbs.)	3	6	8	8	8	8
THICKNESS OF INSULATION (in.)						
Top	1½	2	2	2	2	2
Side	1½	2	2	2	2	2
Bottom	2	2½	2½	2½	2½	2½
COMPRESSOR SPECIFICATIONS						
Compressor capacity (lbs.) I.M.E.	120	120	120	120	120	120
Motor size (hp.)	1/6	1/6	1/6	1/6	1/6	1/6
Compressor speed r.p.m.	430	430	430	430	430	430
Compressor bore (in.)	1½	1½	1½	1½	1½	1½
Compressor stroke (in.)	1¼	1¼	1¼	1¼	1¼	1¼
No. of cylinders	1	1	1	1	1	1
PRICE, f.o.b. factory	$110	$120	$145	$180	$165	$200

CABINET MATERIALS
Make of cabinet.....Gibson
Material used for frame.....Wood
Finish of shelves.....Tinned
Material used for breaker strip.....Wood
Material used for gasket.....Rubber
Make of gasket .....Wirf
Make of insulation.....Balsam Wool

FINISH
Cabinet finish (exterior).....LP models, lacquer; P models, porcelain
Cabinet finish (interior).....Porcelain

HARDWARE
Make of hardware.....Grand Rapids Brass
Process of manufacture.....Stamped
Basic metal of hardware.....Brass
Finish of hardware.....Chromium

MOTOR
Make of motor.....Howell
Type of motor.....Capacitor

COMPRESSOR
Make of compressor.....Universal Cooler
Type of system.....Conventional
Type of compressor.....Reciprocating
Compressor drive .....Belt
Type of shaft seal.....Bellows
Location of compressor.....Below

REFRIGERANT
Refrigerant used.....Methyl chloride
Amount in system.....1½ lbs.

LUBRICATION
Brand of compressor lubricant.....Argon
Quantity in system.....1 pint
How often should motor be oiled..Annually

CONTROL
Make of control.....Tagliabue
Type of control.....Temperature
Temperature regulation method....Manual

EVAPORATOR
Make of evaporator.....Universal Cooler
Evaporator construction .....Tubular
Metal used .....Copper
Make of expansion valve.Detroit Lubricator
Type of refrigerant control.Expansion valve
Type of ice cube trays.....Aluminum, Flexotray in all but LP-3.5

CONDENSER
Make of condenser..Bush, & Long Mfg. Co.
Method of cooling.....Fan
Type of condenser.....Finned tube

POLICY
Guarantee on cabinet.....1 year
Guarantee on system.....1 year
Serviced by.....Distributor
Are replacement parts sold to independent service companies.....Yes

CAVALIER

Tennessee Furniture Corp., Chattanooga, Tenn.

Model No.	101	119	111	112	121	122	131	132	141	142	152
CABINET SPECIFICATIONS											
Overall dimensions (in.)											
Height	56	58	59¾	59¾	62¾	62¾	65¼	65¼	65¼	65¼	65¼
Width	24⅜	26⅜	24⅜	24⅜	26⅜	26⅜	30½	30½	34⅞	34⅞	40⅜
Depth	22⅛	22⅞	22½	22½	23⅞	23⅞	23⅞	23⅞	23⅞	23⅞	23⅞
Inside dimensions of liner (in.)											
Height	27½	30⅛	27½	27½	30⅛	30⅛	32	32	32	32	32
Width	19½	20½	19½	19½	20½	20½	23⅝	23⅝	28	28	33½
Depth	15	16	15	15	16	16	15½	15½	15½	15½	15½
No. of doors	1	1	1	1	1	1	1	1	1	1	2
STORAGE CAPACITY											
Gross food storage (cu. ft.)	4.65	5.72	4.65	4.65	5.72	5.72	6.78	6.78	8.04	8.04	9.61
Net food storage (cu. ft.)	4.13	5.09	4.13	4.13	5.09	5.09	6.04	6.04	7.30	7.30	8.84
No. of shelves	3	3	3	3	3	3	3	3	3	3	5
Total shelf area (sq. ft.)	8.94	10.41	8.94	8.94	10.41	10.41	11.91	11.91	13.76	13.76	15.36
ICE CUBE TRAYS											
No. of trays	3	3	3	3	3	3	3	3	4	4	5
No. of cubes produced	30	30	30	30	63	63	63	63	84	84	105
Weight of cubes (lbs.)	3	3	3	3	6	6	6	6	8	8	10
THICKNESS OF INSULATION (in.)											
Top	2½	2½	2½	2½	2½	2½	2½	2½	2½	2½	2½
Side	2	2½	2	2	2½	2½	3	3	3	3	3
Bottom	2	2½	2	2	2½	2½	3	3	3	3	3
COMPRESSOR SPECIFICATIONS											
Motor Size (hp.)	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/5	1/5	1/5
Compressor speed r.p.m.	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Compressor bore (in.)	1 5/16										
Compressor stroke (in.)	1½	1½	1½	1½	1½	1½	1½	1½	1½	1½	1½
WEIGHT, total shipping (lbs.)	317	365	334	344	376	391	417	468	450	495	518

* * *

CABINET MATERIALS
Make of cabinet.....Tennessee Furniture
Material used for frame.....Wood
Finish of shelves .....Tinned
Material used for breaker strip.....Model 101—maple; others—Formica
Material used for gasket..Extruded rubber
Make of gasket .....Miller
Make of insulation .....Dry-Zero

FINISH
Cabinet finish (exterior)....Models 112, 122 132, 142, 152—porcelain; others—lacquer
Cabinet finish (interior).....Porcelain

HARDWARE
Make of hardware....Grand Rapids Brass
Process of manufacture.....Stamped
Basic metal of hardware.....Brass
Finish of hardware .....Chromium

MOTOR
Make of motor.....General Electric
Type of motor .....Capacitor

COMPRESSOR
Make of compressor .....Sunbeam
Type of system.....Conventional
Type of compressor .....Rotary
Compressor drive .....Direct
Type of shaft seal.....Bellows
Location of compressor.....Above

REFRIGERANT
Refrigerant used .....Sulphur dioxide
Amount in system .....2 lbs.

LUBRICATION
Brand of compressor lubricant.....Argon
Quantity in system.....1 pt.
How often should motor be oiled....Semi-annually

CONTROL
Make of control...General Electric & Penn
Type of control.....Temperature
Temperature regulation method....Manual
How defrosted.....Shut down unit

EVAPORATOR
Make of evaporator.....Sunbeam
Evaporator construction .....Tubular
Metal used .....Copper & brass
Make of expansion valve.Detroit Lubricator
Type of refrigerant control.Expansion valve
Type of ice cube trays.....Aluminum

CONDENSER
Make of condenser .....Fedders
Method of cooling .....Fan
Type of condenser .....Finned tube

SPECIAL FEATURES
Vegetable storage bin on all models except 101 and 119.

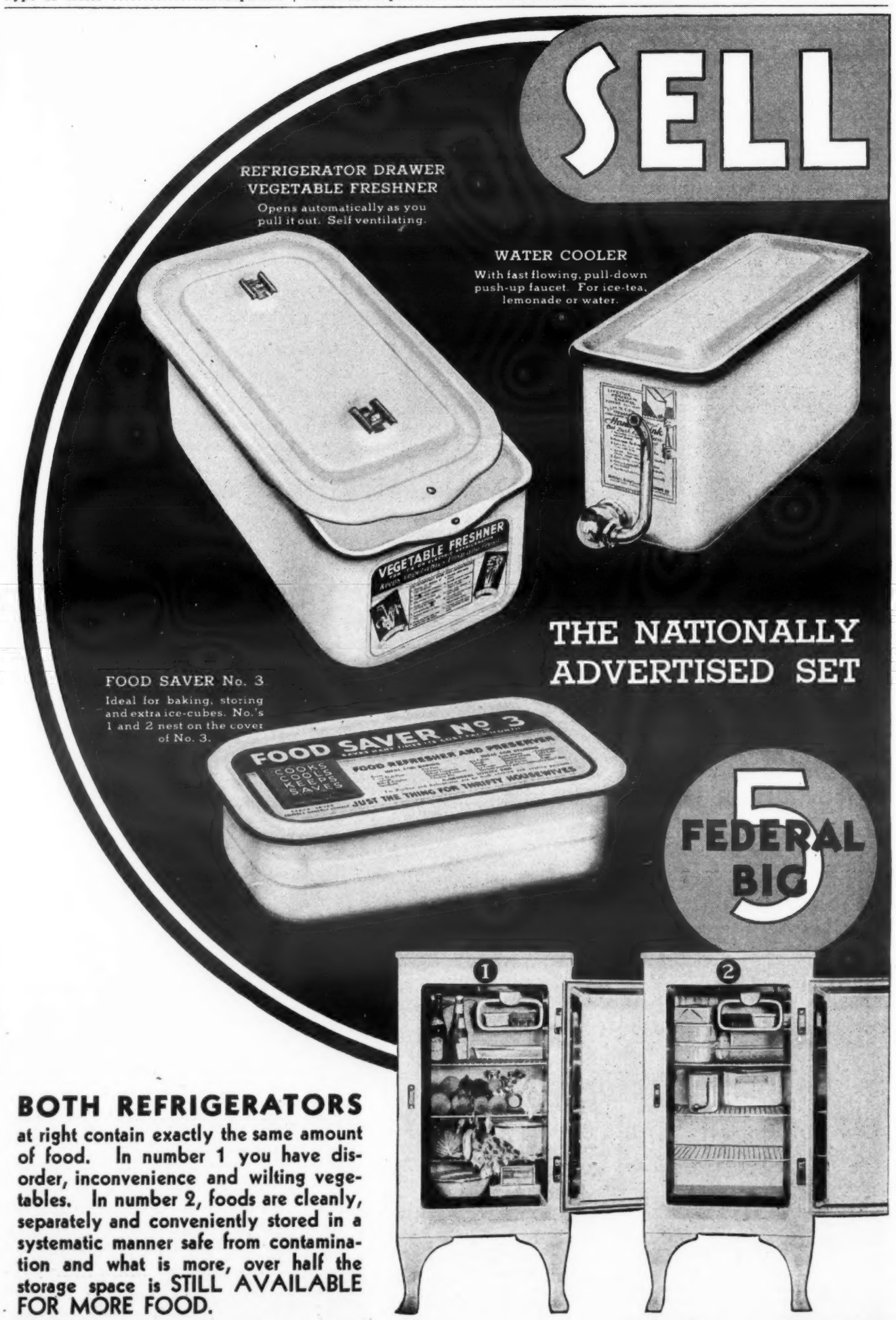
POLICY
Guarantee on cabinet .....1 year
Guarantee on system .....3 years
Serviced by.....Minor repairs by dealer or distributor; others at factory
Are replacement parts sold to independent service companies.....No

CROSLEY

Crosley Radio Corp.
Cincinnati, Ohio

Model No.	D-35	D-45	D-60
CABINET SPECIFICATIONS			
Overall dimensions (in.)			
Height	50⅝	56⅞	57⅝
Width	23⅞	23⅞	29½
Depth	24⅛	24⅛	25⅞
Inside dimensions of liner (in.)			
Height	22½	28¾	28¾
Width	17⅜	17⅜	21¾
Depth	18⅛	18⅛	19
No. of doors	1	1	1
STORAGE CAPACITY			
Gross food storage (cu. ft.)	3.9	5.1	6.68
Net food storage (cu. ft.)	3.5	4.5	6.0
No. of shelves	3	4	4
Total shelf area (sq. ft.)	8.0	10.6	11.5
ICE CUBE TRAYS			
No. of trays	2	3	3
No. of cubes produced	42	63	63
Weight of cubes (lbs.)	2.6	3.9	3.9
THICKNESS OF INSULATION (in.)			
Top of cabinet	3⅛	3⅛	3⅛
Side of cabinet	3	3	3½
Bottom of cabinet	3	3	3½
COMPRESSOR SPECIFICATIONS			
Compressor capacity at zero lb. gauge	60	60	85
Motor size (hp.)	1/8*	1/8*	1/6**
Compressor speed r.p.m.	540	540	540
Compressor bore (in.)	1¼	1¼	1½
Compressor stroke (in.)	1⅜	1⅜	1⅜
No. of cylinders	1	1	1
PRICE Installed	$95	$105	$130

(Continued on Page 25, Column 1)


SELL
REFRIGERATOR DRAWER
VEGETABLE FRESHNER
Opens automatically as you pull it out. Self ventilating.
WATER COOLER
With fast flowing, pull-down push-up faucet. For ice-tea, lemonade or water.
VEGETABLE FRESHNER
FOOD SAVER No. 3
Ideal for baking, storing and extra ice-cubes. No.'s 1 and 2 nest on the cover of No. 3.
FOOD SAVER No 3
FOOD REFRESHER AND PRESERVER
JUST THE THING FOR THRIFTY HOUSEWIVES
THE NATIONALLY ADVERTISED SET
FEDERAL BIG 5
1
2
BOTH REFRIGERATORS
at right contain exactly the same amount of food. In number 1 you have disorder, inconvenience and wilting vegetables. In number 2, foods are cleanly, separately and conveniently stored in a systematic manner safe from contamination and what is more, over half the storage space is STILL AVAILABLE FOR MORE FOOD.

CROSLEY

(*Continued from Page 24, Column 5*)

CABINET MATERIALS
Make of cabinet ..... Truscon
Finish of shelves ..... Tinned
Material used for breaker strip ..... Wood
Material used for gasket ..... Rubber
Make of insulation ..... Thermocraft

FINISH
Cabinet finish (exterior) ..... Lacquer and Porcelain
Cabinet finish (interior) ..... Porcelain

HARDWARE
Process of manufacture ..... Stamped
Basic metal of hardware ..... Brass
Finish of hardware ..... Chromium

EVAPORATOR
Make of evaporator ..... Crosley
Evaporator construction ..... Shell
Metal used ..... Steel
Type of refrigerant control .. Capillary tube
Type of ice cube tray ..... Aluminum

CONDENSER
Make of condenser ..... McCord
Method of cooling ..... Fan
Type of condenser ..... Finned tube

COMPRESSOR
Make of compressor ..... Crosley
Type of system ..... Conventional
Type of compressor ..... Reciprocating
Compressor drive ..... Belt
Make of shaft seal ..... Crosley diaphragm
Location of compressor ..... Above

MOTOR
Make of motor ..... Delco
Type of motor ..... Repulsion-Induction

CONTROL
Make of control ..... Ranco
Type of control ..... Temperature
Temperature regulation method ... Manual
How defrosted .. Defrosting cycle on switch

REFRIGERANT
Refrigerant used ..... Sulphur dioxide
Chemical formula ..... SO_2
Amount in system ..... 2 lbs. approx.

LUBRICATION
Brand of compressor lubricant ..... Sunisco
Quantity in system ..... D-60—15 oz.; others—14 oz.
How often should motor be oiled ... 3 years

SPECIAL FEATURES
"Shelvador" and interior light on all models.

*Foreign models use 1/6-hp. motor.
**Foreign models use 1/5-hp. motor.

POLICY
Guarantee on cabinet ..... 1 year
Guarantee on system ..... 1 year
Serviced by .... Dealer, distributor, factory
Are replacement parts sold to independent service companies ..... No

LIBERTY

Liberty Refrigeration Corp., 237 Georgia Ave., Providence, R. I.

Model No.	LE36	LE40	LP45	LP55	LP65	LP80	LP350	LF400	LP450	LP550	LP650	LP800
Height	50	52⅛	53⅝	58¾	63	63	50⅝	51⅝	54⅞	59⅜	59¾	64
Width	22¾	25	25	25	28	32	25¼	24⅞	25	28	31	32¾
Depth	20⅜	23⅜	23⅜	23⅜	26⅜	26⅜	25⅜	22½	23	24½	24½	24½
Inside dimensions of liner (in.)												
Height	24½	22⅝	22⅝	27⅝	31⅞	31⅞	23	26	26	30	30	34
Width	18½	20¼	20¼	20¼	24¼	25½	20⅜	20	20	21½	24½	24½
Depth	14½	18¼	18¼	16¼	16⅞	16⅞	15¼	15¼	15¼	16	16	16
No. of doors	1	1	1	1	1	1	1	1	1	1	1	1
STORAGE CAPACITY												
Gross food storage (cu. ft.)	3.80	4.31	4.31	5.26	6.61	7.94	3.9	4.6	4.6	6.0	6.8	8.0
Net food storage (cu. ft.)	3.20	3.70	3.70	4.60	5.80	7.20	3.30	4.0	4.0	5.2	6.0	7.2
No. of shelves	2	3	3	4	4	4	3	3	4	5	5	6
Total shelf area (sq. ft.)	5.27	6.45	6.45	8.65	10.01	12.15	6.1	7.1	9.5	12.7	14.5	16.6
ICE CUBE TRAYS												
No. of trays	2	2	2	2	3	3	2	2	2	3	3	4
No. of cubes produced	56	56	56	56	84	84	56	56	56	84	84	112
Weight of cubes (lbs.)	3½	3½	3½	3½	5¼	5¼	3½	3½	3½	5¼	5¼	7
THICKNESS OF INSULATION (in.)												
Top	2	2	2	2	3	3	....	....	....	....	....	....
Side	2	2	2	2	3	3	....	....	....	....	....	....
Bottom	2	2	2	2	3	3	....	....	....	....	....	....
COMPRESSOR SPECIFICATIONS												
Compressor capacity (lbs.) I.M.E.	70	70	70	70	70	70	70	70	70	70	70	70
Motor size (hp.)	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/6
Compressor speed r.p.m.	370	370	370	370	370	370	370	370	370	370	370	370
Compressor bore (in.)	1½	1½	1½	1½	1½	1½	1½	1½	1½	1½	1½	1½
Compressor stroke (in.)	1¼	1¼	1¼	1¼	1¼	1¼	1¼	1¼	1¼	1¼	1¼	1¼
No. of cylinders	1	1	1	1	1	1	1	1	1	1	1	1
PRICE, f.o.b. factory, net to distributor	$49.75	$59.75	$69.75	$79.75	$94.75	$114.75	$54.00	$65.00	$76.00	$87.00	$103.00	$124.00
WEIGHT, total shipping (lbs.)	250	260	295	298	374	415	263	283	288	330	362	405

* * *

CABINET MATERIALS
Make of cabinet .... LE-35, LE-40, LP-45, LP-55, LP-65, LP-80—White Mountain; others—Standard Gas equipment
Material used for frame .. White Mountain cabinets—wood; others—steel
Finish of shelves ..... Tinned
Materials used for breaker strip .... Wood
Material used for gasket ..... Rubber
Make of insulation ..... White Mountain cabinets—Dry-Zero; others—Balsam Wool

FINISH
Cabinet finish (exterior) ..... Lacquer
Cabinet finish (interior) .... LE models—lacquer; all others—porcelain

HARDWARE
Process of manufacture ..... Stamped
Basic metal of hardware ..... Brass
Finish of hardware ..... Chromium

MOTOR
Make of motor ..... Howell
Type of motor ..... Capacitor

COMPRESSOR
Make of compressor ..... Liberty
Type of system ..... Conventional
Type of compressor ..... Reciprocating
Compressor drive ..... Belt
Type of shaft seal ..... Bellows
Location of compressor .. White Mountain cabinets—above; others—below

REFRIGERANT
Refrigerant used ..... Methyl chloride
Trade name ..... Artic
Amount in system ..... 1.3 lbs.

LUBRICATION
Brand of compressor lubricant .... Texaco
Quantity in system ..... .63 pt.
How often should motor be oiled ..... Monthly

CONTROL
Type of control ..... Temperature
Temperature regulation method ... Manual

EVAPORATOR
Make of evaporator ..... Liberty
Evaporator construction ..... Tubular
Metal used ..... Copper, nickel-plated
Make of expansion valve ..... Lidseen
Type of ice cube trays ..... Aluminum

CONDENSER
Make of condenser ..... Bush
Method of cooling ..... Fan
Type of condenser ..... Finned tube

POLICY
Guarantee on cabinet ..... 1 year
Guarantee on system ..... 1 year
Serviced by ..... Dealer & factory

M & E

Merchant & Evans Co.
Philadelphia, Pa.

Model No.	TL-46	SL-46	SL-57	SP-57	SL-67	SP-83
CABINET SPECIFICATIONS						
Overall dimensions (in.)						
Height	50½	54	57⅛	57⅛	59⅞	59⅞
Width	23¾	24⅜	26⅜	26⅜	30½	34⅛
Depth	19⅛	20⅝	22⅛	22⅛	22⅛	23⅛
Inside dimensions of liner (in.)						
Height	27½	27½	30⅛	30⅛	32	32
Width	19½	19½	20½	20½	23⅝	27¼
Depth	15	15	16	16	16½	16½
No. of doors	1	1	1	1	1	1
STORAGE CAPACITY						
Gross food storage (cu. ft.)	4.6	4.6	5.7	5.7	6.7	8.3
Net food storage (cu. ft.)	4.0	4.0	5.0	5.0	6.0	7.0
Total shelf area (sq. ft.)	9	8¼	10¼	10¼	12	15
ICE CUBE TRAYS						
No. of trays	3	2	3	3	4	5
No. of cubes produced	45	56	84	84	112	140
THICKNESS OF INSULATION (in.)						
Top	2	2	2½	2½	3	3
Side	2	2	2½	2½	3	3
Bottom	2	2	2½	2½	3	3
COMPRESSOR SPECIFICATIONS						
Compressor capacity (lbs.) I.M.E.	70	70	100	100	100	100
Motor size (hp.)	1/6	1/6	1/6	1/6	1/6	1/6
PRICE, installed (suggested)	$99.50	$110	$155	$175	$185	$250
CABINET MATERIALS						
Make of cabinet	Seeger					
Material used for breaker strip	Formica					
Make of insulation	Dry-Zero					
FINISH						
Cabinet finish (exterior)	SP-57 & SP-83—porcelain; others—lacquer					
Cabinet finish (interior)	Porcelain					
HARDWARE						
Process of manufacture	Stamped					
Basic metal of hardware	Bronze					
Finish of hardware	Chromium					
MOTOR						
Make of motor	Wagner					
Type of motor	Repulsion-Induction					
COMPRESSOR						
Make of compressor	Merchant & Evans					
Type of system	Conventional					
Type of compressor	Reciprocating					
Compressor drive	TL-46 & SL-46—direct; others—belt					
Type of shaft seal	Diaphragm					
Location of compressor	Below					
REFRIGERANT						
Refrigerant used	Sulphur dioxide					
LUBRICATION						
Brand of compressor lubricant	Sun					
How often should motor be oiled	Annually					
CONTROL						
Type of control	Temperature					
Temperature regulation method	Manual					
EVAPORATOR						
Make of evaporator	Model TL-46—M & E; others—McCord					
Metal used	Copper					
Make expansion valve	Detroit Lubricator					
Type of ice cube trays	Aluminum					
CONDENSER						
Make of condenser	M & E					
Method of cooling	Fan					
Type of condenser	Finned tube					
EPECIAL FEATURES						
Electric light on all but models TL-46 & SL-46.						
POLICY						
Guarantee on cabinet	1 year					
Guarantee on system	1 year					
Serviced by	Distributor					
Are replacement parts sold to independent service companies	Yes					

GURNEY

Gurney Refrigerator Co.
Fond du Lac, Wis.

Model No...	4	5	6	8	10
CABINET SPECIFICATIONS					
Overall dimensions (in.)					
Height	49	52½	56	56	66¼
Width	25⅜	26¼	32¼	40¼	40¼
Depth	22½	22½	25	25	25
Inside dimensions of liner (in.)					
Height	21	24	26⅞	26⅞	37½
Width	20¼	21	25⅛	33⅛	33⅛
Depth	15½	15½	15¾	15¾	15¾
No. of doors	1	1	1	2	4
STORAGE CAPACITY					
Gross food storage (cu. ft.)	3.81	4.52	6.17	8.11	11.32
No. of shelves	3	4	5	4	7
Total shelf area (sq. ft.)	7.24	8.71	12.28	11.37	16.9
ICE CUBE TRAYS					
No. of trays	3	3	3	4	5
No. of cubes produced	30	30	63	84	105
THICKNESS OF INSULATION (in.)					
Side	2	2	3	3	3
Bottom	2½	2⅝	3⅛	3⅛	3⅛
COMPRESSOR SPECIFICATIONS					
Compressor capacity (lbs.) I.M.E.	125	125	125	125	125
Motor size (hp.)	1/6	1/6	1/6	1/5	1/4
Compressor speed r.p.m.	1750	1750	1750	1750	1750
PRICE, f.o.b. factory	$109.50	$134.50	$179.50	$242.50	$304.50
WEIGHT, total shipping	300	293	363	460	527

CABINET MATERIALS
Make of cabinet ..... Gurney
Material used for frame ..... Wood
Finish of shelves ..... Tinned
Materials used for breaker strip ..... Micarta and Panelyte
Material used for gasket ..... Rubber
Make of gasket ..... Goodrich
Make of insulation ..... Model 4—Celotex; others—Balsam Wool

FINISH
Cabinet finish (exterior) ..... Synthetic porcelain
Cabinet finish (interior) ..... Porcelain

HARDWARE
Make of hardware .... Grand Rapids Brass
Process of manufacture ..... Stamped
Basic metal of hardware ..... Brass
Finish of hardware ..... Chromium

MOTOR
Type of motor ..... Condenser

COMPRESSOR
Make of compressor ..... Sunbeam
Type of system ..... Conventional
Type of compressor ..... Rotary
Compressor drive ..... Direct
Location of compressor ..... Above

REFRIGERANT
Refrigerant used ..... Sulphur dioxide

LUBRICATION
How often should motor be oiled ..... Semi-annually

CONTROL
Make of control ..... General Electric
Type of control ..... Temperature
Temperature regulation method .... Manual
How defrosted ..... Shut down unit

EVAPORATOR
Make of evaporator ..... Sunbeam
Evaporator construction ..... Tubular
Metal used ..... Copper, with brass core
Make of expansion valve . Detroit Lubricator

CONDENSER
Make of condenser ..... Sunbeam
Method of cooling ..... Fan
Type of condenser ..... Finned tube

POLICY
Guarantee on cabinet ..... 1 year
Guarantee on system ..... 1 year
Serviced by ..... Factory
Are replacement parts sold to independent service companies ..... No

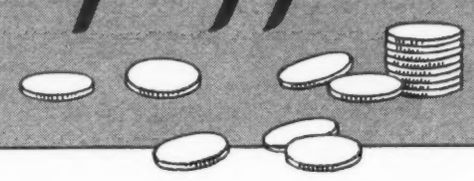
CHILRITE

Narragansett Machine Co.
Vale St., Pawtucket, R. I.

Model No. LP43	L4 P4	L5 P5	L6 P6
CABINET SPECIFICATIONS			
Overall dimensions (in.)			
Height	51½	54	57½	59⅞
Width	25	24⅜	26⅜	30½
Depth	20½	20⅝	22⅛	23⅛
Inside dimensions of liner (in.)				
Height	26¼	27¼	30	32
Width	20	19½	20¾	23⅝
Depth	15½	14½	15½	15⅛
No. of doors.....	1	1	1	1
STORAGE CAPACITY				
Gross food storage (cu. ft.)	4.7	4.4	5.4	6.6
Net food storage (cu. ft.)	4.0	3.7	4.3	5.4
No. of shelves...	3	3	5	5
Total shelf area (sq. ft.)	5.4	6.6	8.7	10.3
THICKNESS OF INSULATION (in.)				
Top	2¼	3⅜	3½	4⅛
Sides	2⅛	2¼	2¼	3⅛
Bottom	2⅜	2⅛	2½	3
COMPRESSOR SPECIFICATIONS				
Motor size (hp.).	1/6	1/6	1/6	1/6
Refrigerant in systems (lbs.)	4½	4½	5	6

(*Continued on Page 26, Column 1*)

a completely equipped refrigerator



Try it . . . see how much easier it is to sell a completely equipped refrigerator

As the real-estate operator built homes in order to market vacant lots—as the automobile manufacturer stepped ahead of competition by installing accessories, so today! dealers have found that the "completely furnished refrigerator" is the new profit-producing idea.

This original sales-getting set is the only one of its kind. Use it without it costing you one cent. Add the cost of it to the delivered price of the refrigerator and you have a unit to offer which women will buy NOW.

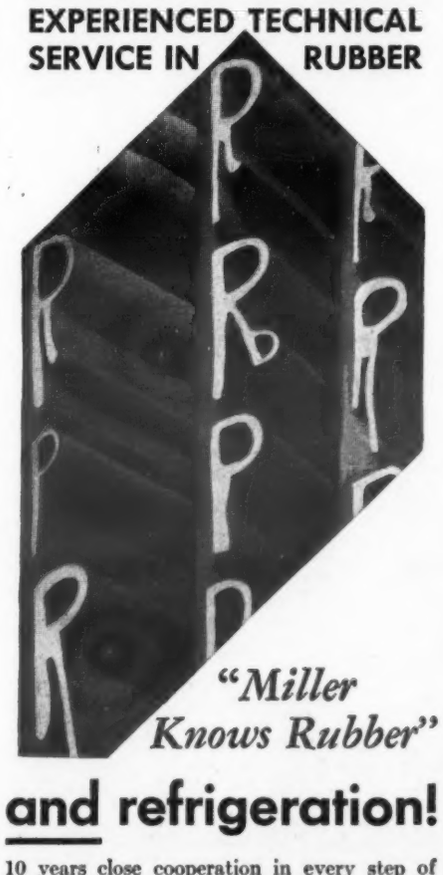
Every item is of the finest quality triple-coated porcelain enamel. Designed for use as a compact, convenient unit, it saves space, food and money, greatly increases the attractiveness and efficiency of any refrigerator and brings you a new sales maker.

FEDERAL ENAMELING & STAMPING CO.
World's Largest Manufacturer of Enameled Kitchenware
PITTSBURGH • PENNSYLVANIA

FEDERAL
offers the only complete line of
REFRIGERATOR FURNISHINGS

Doorseal Designing

AN EXAMPLE OF MILLER'S EXPERIENCED TECHNICAL SERVICE IN RUBBER


RRRR

CHILRITE

(*Continued from Page 25, Column 5*)

	L4	L5	L6
Model No.	LP4	P5	P6
ICE CUBE TRAYS			
No. of trays	2	3	3
No. of cubes produced	56	84	84
Weight of cubes (lbs.)	4	6	6
CABINET MATERIALS			
Make of cabinet	Seeger		
Material used for frame	Wood		
Finish of shelves	Tinned		
Material used for breaker strip	Formica		
Material used for gasket	Rubber		
Make of insulation	Insulite and Dry-Zero		
FINISH			
Cabinet finish (exterior)	P models—porcelain; all others—lacquer		
Cabinet finish (interior)	Porcelain		
HARDWARE			
Process of manufacture	Cast and stamped		
Basic metal of hardware	Brass		
Finish of hardware	Chromium		
MOTOR			
Make of motor	Century		
Type of motor	Repulsion-induction		
COMPRESSOR			
Make of compressor	Chilrite		
Type of system	Conventional		
Type of compressor	Rotary		
Compressor drive	Direct		
Make of shaft seal	Rotary seal		
Location of compressor	Below		
REFRIGERANT			
Refrigerant used	Sulphur dioxide		
LUBRICATION			
Make of lubricant	Kaydol Special		
Quantity in system	1 quart		
Motor should be oiled	Annually		
CONTROL			
Make of control	Ranco		
Type of control	Temperature		
Temperature regulation method	Manual		
How defrosted	Shut down unit		
EVAPORATOR			
Make of evaporator	Mullins		
Evaporator construction	Shell		
Metal used for evaporator	Steel		
Type of control	Low side float		
Type and make of trays	Aluminum		
CONDENSER			
Make of condenser	Bush		
Fan or natural draft cooling	Fan		
Type of condenser	Finned tube		
SPECIAL FEATURES			
Vegetable tray.			
POLICY			
Guarantee on cabinet	1 year		
Guarantee on system	1 year		
Serviced by	Dealer, distributor, factory		
Are replacement parts sold to independent service companies	Yes		

WANTED

Blue Prints

Before Placing Your Order for Any Hard or Semi-Hard Rubber parts such as Gliders - Lid Knobs - Moldings or Lid Rings

Send us your Specifications for Bidding

VULCANIZED RUBBER CO.
261 Fifth Avenue
New York, New York
Established 1879

SNOW BIRD

Gilson Mfg. Co., Ltd., Guelph, Ont., Can.

	5S	5	7	9	10
Model No					
CABINET SPECIFICATIONS					
Overall dimensions (in.)					
Height	57¼	57¼	59¼	65¼	61¾
Width	24¼	24¼	29	29½	38½
Depth	20	20	20¼	20¼	23½
Inside dimensions of liner (in.)					
Height	28½	28½	30½	36½	33
Width	19	19	23½	24½	33
Depth	16¼	16¼	16¼	16¼	16
No. of doors	1	1	1	1	2
STORAGE CAPACITY					
Gross food storage (cu. ft.)	5.0	5.0	7.0	8.6	10.0
Net food storage (cu. ft.)	4.2	4.2	6.1	7.2	8.8
No. of shelves	3	3	3	4	5
Total shelf area (sq. ft.)	8.57	8.57	10.57	13.8	20.7
ICE CUBE TRAYS					
No. of trays	2	2	2	2	3
No. of cubes produced	56	56	56	56	84
Weight of cubes (lbs.)	2	2	2	2	3
THICKNESS OF INSULATION (in.)					
Top	3	3	3	3	3
Sides	2½	2½	2½	2½	2½
Bottom	3	3	3	3	3
COMPRESSOR SPECIFICATIONS					
Compressor capacity (lbs.) I.M.E	160	160	160	190	190
Motor size (hp.)	1/6	1/6	1/6	1/6	1/4
Quantity of refrigerant in system (lbs.)	4¼	4½	4½	5	5
Quantity of lubricant in system (oz.)	18	18	18	18	22
WEIGHT, net (lbs.)	295	310	360	395	500
CABINET MATERIALS					
Make of cabinet	Renfrew				
Material used for frame	Wood				
Finish of shelves	Tinned				
Material used for breaker strip	Wood				
Material used for gasket	Rubber				
Make of insulation	Fibre board				
FINISH					
Cabinet finish (exterior)	Lacquer				
Cabinet finish (interior)	5-S—enamel; all others—porcelain				
HARDWARE					
Make of hardware	Grand Rapids Brass				
Process of manufacture	Stamped				
Basic metal of hardware	Brass				
Finish of hardware	Chromium				
EVAPORATOR					
Make of evaporator	Gilson				
Evaporator construction	Shell				
Metal used for evaporator	Brass and copper				
Type of refrigerant control	Low side float				
COMPRESSOR					
Make of compressor	Gilson				
Type of system	Conventional				
Type of compressor	Reciprocating				
Compressor drive	Belt				
Type and make of shaft seal	Bishop & Babcock—bellows				
Location of compressor	Below				
CONDENSER					
Make of condenser	Court				
Fan or natural draft cooling	Fan				
Type of condenser	Finned tube				
REFRIGERANT					
Refrigerant used	Sulphur Dioxide				
LUBRICATION					
Make of compressor lubricant	Suniso				
How often should motor be oiled	Semi-annually				
MOTOR					
Make of motor	Leland				
Type of motor	Repulsion-Induction				
CONTROL					
Make of control	Bishop & Babcock				
Type of control	Temperature				
Temperature regulation method	Manual				
How defrosted	Shut down unit				
POLICY					
Guarantee period on cabinet	1 year				
Guarantee period on system	1 year				
Serviced by	Dealer				
Are replacement parts sold to independent service companies	Yes				

GRINNELL

Grinnell Washing Machine Corp., Grinnell, Iowa

	4-E	5-E	6-E	7-E	46	58	79
Model No.							
CABINET SPECIFICATIONS							
Overall dimensions (in.)							
Height	56	57½	61½	61	51	57	62
Width	23½	25½	28¼	32¼	23½	27	33½
Depth	22½	23½	27	27¾	20½	20	26
Inside dimensions of liner (in.)							
Height	26¼	29	30	29	26	30¾	30⅝
Width	19¼	19⅛	22½	25⅜	19½	21½	25
Depth	15	16½	18	19½	15½	14½	21¼
No. of doors	1	1	1	1 & 2	1	1	1
STORAGE CAPACITY							
Gross food storage (cu. ft.)	4.47	5.3	7.0	8.3	4.6	5.8	7.9
Net food storage (cu. ft.)	4.0	4.6	6.46	7.23	4.0	5.0	7.0
No. of shelves	3	3	4	4	3	4	4
Total shelf area (sq. ft.)	7.88	9.5	10.9	13.4	7.5	9.5	13.5
ICE CUBE TRAYS							
No. of trays	2	3	3	4	2	3	4
No. of cubes produced	42	63	84	105	42	63	105
Weight of cubes (lbs.)	3	4¼	5	6½	3	4¼	6½
THICKNESS OF INSULATION (in.)							
Top	2½	3	3	3	2	2½	4
Side	2½	3	3	3	2	2½	4
Bottom	2½	3	3	3	2½	3	4
COMPRESSOR SPECIFICATIONS							
Compressor capacity (lbs.) I.M.E.	119	119	119	119	119	119	119
Motor size (hp.)	1/6	1/6	1/6	1/6	1/6	1/6	1/6
Compressor speed r.p.m.	525	525	525	525	525	525	525
Compressor bore (in.)	1⅝	1⅝	1⅝	1⅝	1⅝	1⅝	1⅝
Compressor stroke (in.)				1 3/16			
No. of cylinders	1	1	1	1	1	1	1
WEIGHT, total shipping (lbs.)	310	328	360	388	320	360	475
CABINET MATERIALS							
Make of cabinet	Grinnell						
Material used for frame	Steel						
Finish of shelves	Tinned						
Materials used for breaker strip	Formica						
Material used for gasket	Rubber						
Make of gasket	Miller & Jarrow						
Make of insulation	Dry-Zero & Maizwood						
FINISH							
Cabinet finish (exterior)	Lacquer						
Cabinet finish (interior)	Porcelain						
HARDWARE							
Make of hardware	National Lock						
Process of manufacture	Stamped						
Basic metal of hardware	Brass						
Finish of hardware	Chromium						
MOTOR							
Make of motor	General Electric & Westinghouse						
Type of motor	Capacitor						
COMPRESSOR							
Make of compressor	Grinnell						
Type of system	Conventional						
Type of compressor	Reciprocating						
Compressor drive	Belt						
Type of shaft seal	Bellows						
Location of compressor	E models—above; others—below						
REFRIGERANT							
Refrigerant used	Sulphur dioxide						
Trade name	Ansul						
Amount in system	Models 4-E, 5-E, 46 & 58—1½ lbs.; others—1¾ lbs.						
LUBRICATION							
Brand of compressor lubricant	PRK Russian mineral oil						
Quantity in system	½ pt.						
How often should motor be oiled	Quarterly						
CONTROL							
Make of control	Cutler-Hammer						
Type of control	Temperature						
Temperature regulation method	Manual						
How defrosted	Shut down unit on E models; others—semi-automatic						
EVAPORATOR							
Make of evaporator	Grinnell						
Evaporator construction	Tubular						
Metal used	Copper						
Make of expansion valve	American Radiator						
Type of ice cube trays	Aluminum						
CONDENSER							
Make of condenser	Bush or Modine						
Method of cooling	Fan						
Type of condenser	Finned tube						
POLICY							
Guarantee on cabinet	1 year						
Guarantee on system	1 year						
Serviced by	Dealer, distributor, factory						
Are replacement parts sold to independent service companies	Yes						

ICE-O-MATIC

Williams Oil-O-Matic Heating Corp., Bloomington, Ill.

	Y-4	Y-5	Y-6	L-40	L-53 P-53	L-64 P-64	L-53-T	L-64-T	D-72
Model No.									
CABINET SPECIFICATIONS									
Overall dimensions (in.)									
Height	52½	56⅜	59	58⅛	60½	62	66	67½	60¾
Width	24½	25½	28⅛	23⅞	26⅜	29⅛	26⅜	29⅛	35⅛
Depth	21¾	23¾	25	20	22	23¾	22	23¾	23⅞
Inside dimensions of liner (in.)									
Height	19	29½	31	26¼	29½	31	29½	31¼	30
Width	26	20½	22	19	20½	22	20½	22	28
Depth	15½	16½	17½	15½	16¾	17¾	16¾	17¾	17¾
No. of doors	1	1	1	1	1	1	1	1	2
STORAGE CAPACITY									
Gross food storage (cu. ft.)	4.43	5.77	6.9	4.3	5.8	7.0	5.8	7.0	8.54
Net food storage (cu. ft.)	4.0	5.3	6.4	4.0	5.3	6.4	5.3	6.4	7.2
No. of shelves	4	5	5	4	5	5	5	5	5
Total shelf area (sq. ft.)	7.9	10.0	11.8	7.7	10.0	11.8	10.0	11.8	13.5
ICE CUBE TRAYS									
No. of trays	2	3	4	3	4	4	4	4	4
No. of cubes produced	42	63	84	54	72	84	72	84	84
Weight of cubes (lbs.)	2.8	4.2	5.6	3.75	5.0	5.6	5.0	5.6	8.54
THICKNESS OF INSULATION (in.)									
Top	2½	2½	2½	2½	3	3½	3	3½	3
Side	2	2	2	2½	2½	3	2½	3	3
Bottom	2	2	2	2½	3	3½	3	3½	3
COMPRESSOR SPECIFICATIONS									
Compressor capacity (lbs.) I.M.E.	90	90	90	90	90	90	64	64	....
Motor size (hp.)	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/4
Compressor speed r.p.m.	300	300	300	300	300	300	1750	1750	....
Compressor bore (in.)				1 5/16			.95	.95	....
Compressor stroke (in.)	1½	1½	1½	1½	1½	1½	½	½	....
No. of cylinders	1	1	1	1	1	1	1	1	2
CABINET MATERIALS									
Material used for frame	Y models—steel; all others—wood								
Finish of shelves	Tinned								
Materials used for breaker strip	Y Models—maple; L-40—wood; all others—Bakelite								
Material used for gasket	Rubber								
Make of insulation	Dry-Zero								
FINISH									
Cabinet finish (exterior)	Y & L models—lacquer; D & P models—porcelain								
Cabinet finish (interior)	Porcelain								
HARDWARE									
Make of hardware	Winters & Crampton								
Process of manufacture	Cast & stamped								
Basic metal of hardware	Brass								
Finish of hardware	Chromium								
MOTOR									
Make of motor	Models L-53-T & L-64-T—Baldor; all others—Williams								
Type of motor	Models L-53-T & L-64-T—split phase; all others—capacitor								
COMPRESSOR									
Make of compressor	Williams								
Type of system	Models L-53-T & L-64-T—hermetic; all others—conventional								
Type of compressor	Reciprocating								
Compressor drive	Models L-53-T & L-64-T—direct; others—belt								
Type of shaft seal	Bellows								
Location of compressor	Models L-53-T & L-64-T—above; others—below								
REFRIGERANT									
Refrigerant used	Methyl chloride								
Amount in system	Models L-53-T & L-64-T—1½ lbs.; others—2 lbs.								
LUBRICATION									
Brand of compressor lubricant	Stanolind								
Quantity in system	Hermetic models—1 pt.; others—1¼ pts.								
How often should motor be oiled	Conventional models—semi-annually								
CONTROL									
Make of control	Penn								
Type of control	Temperature								
Temperature regulation method	Manual								
How defrosted	Semi-automatic								
EVAPORATOR									
Make of evaporator	Fedders								
Evaporator construction	Tubular								
Metal used	Copper								
Type of refrigerant control	Low side float								
Type of ice cube trays	Aluminum								
CONDENSER									
Make of condenser	Fedders								
Method of cooling	Fan								
Type of condenser	Finned tube								
SPECIAL FEATURES									
D, L, P models—vegetable tray & finger-trip door opener; D & P models—electric light.									
POLICY									
Guarantee on cabinet	1 year								
Guarantee on system	1 year								
Serviced by	Dealer, distributor								
Are replacement parts sold to independent service companies	No								

NAPIER

Metal Saw & Machine Co., Inc. Springfield, Mass.

	A-4	A-5	A-6	A-8
Model No.				
CABINET SPECIFICATIONS				
Overall dimensions (in.)				
Height	55½	59	60	60
Width	25	28	30½	35
Depth	20½	22½	22½	24½
Inside dimensions of liner (in.)				
Height	27½	31	32	32
Width	19½	21½	24	28½
Depth	15	16	16	18
No. of doors	1	1	1	1
STORAGE CAPACITY				
Gross food storage (cu. ft.)	4.65	6.15	7.15	9.5
Net food storage (cu. ft.)	4	5	6	8
No. of shelves	3	4	4	4
Total shelf area (sq. ft.)	8.13	10.75	12.00	17.00
ICE CUBE TRAYS				
No of trays	2	3	3	4
No. of cubes produced	56	84	84	112
Weight of cubes (lbs.)	3½	5¼	5¼	7
THICKNESS OF INSULATION (in.)				
Top	2½	3	3	3
Side	2½	3	3	3
Bottom	3	3	3	3
COMPRESSOR SPECIFICATIONS				
Compressor capacity (lbs.) I.M.E.	95	95	95	95
Motor size (hp.)	1/6	1/6	1/6	1/6
Compressor speed r.p.m.	1725	1725	1725	1725
WEIGHT, net (lbs.)	280	310	330	410
CABINET MATERIALS				
Make of cabinet	Seeger			
Finish of shelves	Tinned			
Material used for breaker strip	Panelyte			
Material used for gasket	Rubber			
Make of insulation	Balsam Wool			
FINISH				
Cabinet finish (exterior)	Lacquer			
Cabinet finish (interior)	Porcelain			
HARDWARE				
Make of hardware	Seeger			
Process of manufacture	Stamped			
Basic metal of hardware	Brass			
Finish of hardware	Chromium			
MOTOR				
Make of motor	General Electric			
Type of motor	Capacitor			
COMPRESSOR				
Make of compressor	Metal Saw & Machine			
Type of system	Conventional			
Type of compressor	Rotary			
Compressor drive	Direct			
Type of shaft seal	Bellows			
Location of compressor	Below			
LUBRICATION				
Brand of compressor lubricant	Texaco			
Quantity in system	1½ pts.			
How often should motor be oiled	Every 3 months			

(*Continued on Page 27, Column 1*)

One of the laboratories of Virginia Smelting Co., West Norfolk, Va., in which Extra Dry Esotoo is carefully tested before shipment.

Stocks of this tested Extra Dry Esotoo are carried in 28 convenient cities. Immediate shipment can always be made direct from West Norfolk to any customer anywhere. Write for name of nearest stock and distributor today.

OUR Extra Dry Esotoo is pure, clean, dry and made by our own patented process. Rigid laboratory control is maintained to insure dryness, purity and uniformity. Microscopic tests have proven our assertions.

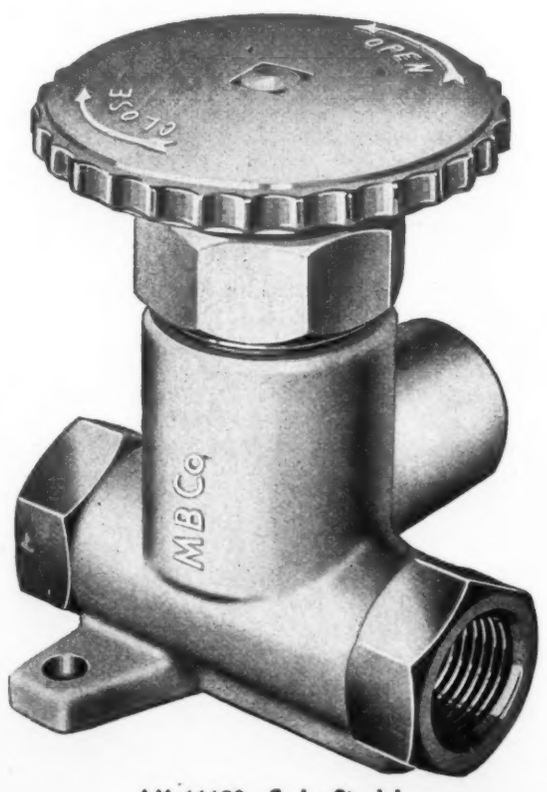
Write, wire or cable us for further facts or information on Extra Dry Esotoo. Cable Address: Eustis Boston.

VIRGINIA SMELTING COMPANY
West Norfolk
Virginia

F. A. Eustis, Sec., 131 State St., Boston and 75 West St., New York.

EXTRA DRY ESOTOO
TRADE MARK REGD U.S. PAT. OFF.

THE NEW MUELLER DOUBLE-PACKED OPERATING VALVE FOR HEAVY DUTY



AX-11190 Code-Sturdab

This valve is the answer to the need for an extra sturdy valve for large commercial installations and for air-conditioning work.

Its openings are full flow, assuring unrestricted passage of the refrigerant up to and including 3/4" O. D. diameter tubing.

It is double-packed and incorporates the back-seating feature. The body, which is extra heavy, and the indexed hand wheel are of forged brass; the stem is of Tuf-Stuf, a corrosion resisting alloy of great strength. The mounting plate is integral with the body.

The packing is not affected by heat or any other of the refrigerants in general use and may be replaced with the valve under pressure without loss of refrigerant or interruption of service.

Note—Mueller AX-11190 is one of the new line of full flow valves, fully described and illustrated in our new catalog ready about March 15th. Send for your copy.

Mueller Brass Co.
PORT HURON, MICHIGAN

Mueller Brass Co. Valves and Fittings are approved by the Underwriters' Laboratories of Chicago

We manufacture a complete line of valves and fittings and can supply your every requirement

NAPIER

(Continued from Page 26, Column 5)

REFRIGERANT
Refrigerant used .....Methyl chloride
Amount in system.....Model A-4—2 lbs.; A-5 & A-6—2½ lbs.; A-8—3 lbs.

CONTROL
Make of control .....Ranco
Type of control .....Temperature
Temperature regulation method...Manual

EVAPORATOR
Make of evaporator .....Mullins
Evaporator construction .....Shell
Metal used .....Steel, finish in porcelain
Type of refrigerant control..Low side float
Type of ice cube trays.....Aluminum

CONDENSER
Make of condenser .....Bush
Method of cooling .....Fan
Type of condenser .....Finned tube

POLICY
Guarantee on cabinet .....1 year
Guarantee on system .....1 year
Serviced by .....Dealer
Are replacement parts sold to independent service companies .....Yes

DAYTON

Dayton Refrigeration Corp. (Heinz & Munschauer) Buffalo, N. Y.

Model No..	4-A-2	5-A-2	6-A-2	8-A-3	283-P
CABINET SPECIFICATIONS					
Overall dimensions (in.)					
Height ..	53	58	58	58	58
Width ...	23½	25½	28	32	33¼
Depth ...	20½	22½	24	25	23¼
Inside dimensions of liner (in.)					
Height .	26¼	29⅜	29⅜	29⅜	30
Width ..	18	18⅜	21¼	25½	26
Depth ..	15¼	16⅜	17⅞	18⅞	17
No. of doors	1	1	1	1	2
STORAGE CAPACITY					
Gross food storage (cu. ft.)	4.32	5.22	6.45	8.10	7.54
Net food storage (cu. ft.)	4.0	5.0	6.0	7.6	7.05
No. of shelves	3	4	4	4	4
Total shelf area (sq. ft.)	6.5	9.0	11.7	13.6	12.8
Model No..	4-A-2	5-A-2	6-A-2	8-A-3	283-P
ICE CUBE TRAYS					
No. of trays	2	2	2	3	3
No. of cubes produced	56	56	56	84	84
Weight of cubes (lbs.)	5	5	5	7½	7½
THICKNESS OF INSULATION (in.)					
Top	2	3	3	3	3
Side	2	3	3	3	3
Bottom	2	3	3	3	3
COMPRESSOR SPECIFICATIONS					
Compressor capacity (lbs.) I.M.E.	85	85	85	85	85
Motor size (hp.)	1/6	1/6	1/6	1/6	1/6
Compressor speed r.p.m.	800	800	800	800	800
Compressor bore (in.)	1⅛	1⅛	1⅛	1⅛	1⅛
Compressor stroke (in.)	1¼	1¼	1¼	1¼	1¼
No. of cylinders	1	1	1	1	1
WEIGHT, total shipping (lbs.)	268	327	341	373	397
CABINET MATERIALS					
Make of cabinet .....Dayton					
Material used for frame.....Wood & steel					
Finish of shelves .....Tinned					
Material used for breaker strip.....Model 4-A-2—Masonite; others—Bakelite					
Material used for gasket.....Rubber					
Make of gasket .....Miller					
Make of insulation.....Model 4-A-2—Fibrocel; others—Dry-Zero					
FINISH					
Cabinet finish (exterior)....Model 283-P—porcelain; others—lacquer					
Cabinet finish (interior).....Porcelain					
HARDWARE					
Make of hardware....Model 4-A-2—Grand Rapids Brass; others—Winters & Crampton					
Process of manufacture.....Stamped					
Basic metal of hardware.....Brass					
Finish of hardware .....Chromium					
MOTOR					
Make of motor .....Leland					
Type of motor.....Repulsion-Induction					
COMPRESSOR					
Make of compressor.....National Pumps					
Type of system .....Conventional					
Type of compressor.....Reciprocating					
Compressor drive .....Belt					
Location of compressor.....Below					
REFRIGERANT					
Refrigerant used .....Sulphur dioxide					
Amount in system.....Models 8-A-3 & 283-P—4 lbs., 6 oz.; others—3 lbs., 6 oz.					
LUBRICATION					
Brand of compressor lubricant.....Sunisco					
Quantity in system.....½ pt.					
How often should motor be oiled...Every 3 months					
CONTROL					
Make of control .....Ranco					
Type of control .....Temperature					
Temperature regulation method....Manual					
How defrosted .....Shut down unit					
EVAPORATOR					
Make of evaporator.....Mullins					
Evaporator construction .....Shell					
Metal used ....Steel, finished in porcelain					
Type of refrigerant control..Low side float					
Type of ice cube trays.....Aluminum					
CONDENSER					
Make of condenser .....McCord					
Method of cooling .....Fan					
Type of condenser .....Finned tube					
POLICY					
Guarantee on cabinet .....None					
Guarantee on system.....1 year					
Are replacement parts sold to independent service companies.....Yes					

CHALLENGER & LECTRIK ICE

Uniflow Mfg. Co., Erie, Pa.

Model No.	S-45	S-60	TS-40	TS-45	D-42 P-42	D-52 P-52	D-63 P-63	D-84 P-84	P-105
CABINET SPECIFICATIONS									
Overall dimensions (in.)									
Height	53	56	46⅜	49½	56	59	59	59	59
Width	23½	26½	23¾	23⅞	26	26	28½	32½	38½
Depth	22⅛	24	19⅛	19¼	23	23	25	26	26
Inside dimensions of liner (in.)									
Height	27⅝	27½	20½	24¼	24¾	29¼	29¼	29¼	29¼
Width	18¼	20½	21	21	18½	18½	21	25¾	31¼
Depth	14⅞	16¾	16	16	16½	16½	18	19	18¾
No. of doors	1	1	1	1	1	1	1	1	2
STORAGE CAPACITY									
Gross food storage (cu. ft.)	4.6	6.0	4.0	4.6	4.5	5.5	6.7	8.0	10.2
Net food storage (cu. ft.)	4.0	5.4	3.6	4.0	4.0	5.0	6.0	7.0	9.0
No. of shelves	4	5	4	4	3	4	4	4	4
Total shelf area (sq. ft.)	8.5	12.0	8.5	8.5	7.5	9.5	12.0	13.5	16.5
ICE CUBE TRAYS									
No. of trays	3	4	2	2	2	2	3	4	5
No. of cubes produced	54	72	36	36	56	56	84	112	140
Weight of cubes (lbs.)	3¾	5	2½	2½	4	4	6	8	10
THICKNESS OF INSULATION (in)									
Top	2½	2½	1½	1½	3	3	3	3	4
Side	2	2	2	2	3	3	3	3	3
Bottom	2½	2½	1½	1½	3	3	3	3	4
COMPRESSOR SPECIFICATIONS									
Compressor capacity (lbs.) I.M.E.	75	75	75	75	75	110	110	150	200
Motor size (hp.)	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/5	1/4
Compressor speed r.p.m.	495	495	495	495	375	375	375	450	375
Compressor bore (in.)	1⅝	1⅝	1⅝	1⅝	1⅝	1⅝	1⅝	1⅝	1⅝
Compressor stroke (in.)	1	1	1	1	1	1¾	1¾	1¾	1⅝
No. of cylinders	1	1	1	1	1	1	1	1	2
Refrigerant in system (lbs.)	3¼	4	2¾	2¾	1¼	1¼	1¼	1½	3

* * *

CABINET MATERIALS
Make of cabinet.....S models—Erie Art Metal; TS models—Truscon; D & P models—Niagara
Material used for frame.....TS models—steel; all others—wood
Finish of shelves .....Tinned
Material used for breaker strip....S & TS models—wood; others—Bakelite
Material used for gasket.....Rubber
Make of gasket.....S & TS models—Goodrich; others—Miller, & Continental
Make of insulation.....S & TS models—Ideal; others—Dry-Zero

FINISH
Cabinet finish (exterior).....P models—porcelain; others—lacquer
Cabinet finish (interior).....Porcelain

HARDWARE
Make of hardware.....S & TS models—Winters & Crampton; others—Grand Rapids Brass
Process of manufacture.....Stamped
Basic metal of hardware.....Steel
Finish of hardware .....Chromium

MOTOR
Make of motor .....Delco
Type of motor .....Repulsion-Induction

COMPRESSOR
Make of compressor .....Uniflow
Type of system .....Conventional
Type of compressor .....Reciprocating
Compressor drive .....Belt
Type of shaft seal.....Bellows
Location of compressor .....Below

REFRIGERANT
Refrigerant used .....Sulphur dioxide
Trade name .....Ansul

LUBRICATION
Brand of compressor lubricant.....White mineral oil
Quantity in system.....S, TS, & models D-42 & P-42—250 grams; P-105—1,000 grams; others—750 grams
How often should motor be oiled....Semi-annually

CONTROL
Make of control .....Ranco
Type of control .....Temperature
Temperature regulation method....Manual
How defrosted .....Manual

EVAPORATOR
Make of evaporator .....Uniflow
Evaporator construction...Shell & tubular
Metal used .....S & TS models—steel; others—copper
Make of expansion valve....D & P models—Detroit Lubricator; others—none
Type of refrigerant control.....S & TS models—low side float; others—none
Type of ice cube trays.....Aluminum

CONDENSER
Make of condenser .....Fedders
Method of cooling .....Fan
Type of condenser .....Finned tube

SPECIAL FEATURES
Electric light.

POLICY
Guarantee on cabinet.....1 year
Guarantee on system.....1 year
Serviced by.....Dealer or distributor
Are replacement parts sold to independent service companies.....Yes

COPELAND

Copeland Products, Inc., 332 Cass Ave., Mt. Clemens, Mich.

Model No.	P-11	P-7	P-6	W-7	W-6	W-52	W-42
CABINET SPECIFICATIONS							
Overall dimensions (in.)							
Height	55⅝	55⅝	55⅝	55⅝	55⅝	52½	50½
Width	44⅞	32⅜	28⅛	32⅜	28⅛	24¼	24¼
Depth	26½	26½	26½	26½	26½	25	22¼
Inside dimensions of liner (in.)							
Height	33½	33½	33½	33½	33½	30⅞	31⅛
Width	38	25½	21¼	25½	21¼	19	19½
Depth	19¾	19¾	19¾	19¾	19¾	19½	16½
No. of doors	2	1	1	1	1	1	1
STORAGE CAPACITY							
Gross food storage (cu. ft.)	11.98	7.73	6.44	7.73	6.44	5.45	4.64
Net food storage (cu. ft.)	11.12	7.3	6.01	7.3	6.01	5.11	4.16
No. of shelves	8	4	4	4	4	4	3
Total shelf area (sq. ft.)	21.9	15.26	12.76	15.26	12.76	10.81	8.97
ICE CUBE TRAYS							
No. of trays	4	3	3	3	3	2	3
No. of cubes produced	154	105	105	105	105	77	48
Weight of cubes (lbs.)	10	6½	6½	6½	6½	5	4
THICKNESS OF INSULATION (in.)							
Top	3	3	3	3	3	2	2
Side	3	3	3	3	3	2¼	2
Bottom	3	3	3	3	3	2¼	2
COMPRESSOR SPECIFICATIONS							
Compressor capacity (lbs.) I.M.E.	202	101	101	101	101	101	101
Motor size (hp.)	Two 1/6's	1/6	1/6	1/6	1/6	1/6	1/6
Compressor speed r.p.m.	1735	1735	1735	1735	1735	1735	1735
Compressor bore (in.)	15/16						
Compressor stroke (in.)	⅝	⅝	⅝	⅝	⅝	⅝	⅝
No. of cylinders	2	1	1	1	1	1	1
WEIGHT, net (lbs.)	530	380	368	356	346	256	222

* * *

CABINET MATERIALS
Make of cabinet .....Truscon
Material used for frame ...Steel & wood
Finish of shelves .....Tinned
Material used for breaker strip....Models W-42 & W-52—Wood; others—rubber
Material used for gasket.....Moulded rubber
Make of insulation .....Dry-Zero

FINISH
Cabinet finish (exterior).....P models—porcelain; W. models—lacquer
Cabinet finish (interior).....Porcelain

HARDWARE
Make of hardware..Models W-52 & W-42—National Lock; all others—Grand Rapids Brass
Process of manufacture.....Forgings and stampings
Basic metal of hardware .....Brass
Finish of hardware .....Chromium

MOTOR
Make of motor .....Delco
Type of motor .....Condenser-start

COMPRESSOR
Make of compressor.....Copeland
Type of system..Sealed, but not hermetic
Type of compressor.....Reciprocating
Compressor drive .....Direct
Type of shaft seal.....None used
Location of compressor.....Behind evaporator

REFRIGERANT
Refrigerant used .....Methyl chloride
Amount in system .....5½ oz.

LUBRICATION
Quantity in system .....100 c.c.
How often should motor be oiled..Never; fan motor—annually

CONTROL
Make of control .....Penn
Type of control .....Temperature
Temperature regulation method...Manual
How defrosted.....Defrosting position on control

EVAPORATOR
Make of evaporator .....Copeland
Evaporator construction .....Tubing over sleeve
Metal used .....Copper
Make of expansion valve.....Detroit Lubricator
Type of ice cube trays....Aluminum, and rubber

CONDENSER
Make of condenser .....Bush
Method of cooling .....Fan
Type of condenser.....Finned tube

SPECIAL FEATURES
All models—telescoping shelf; W-7, W-6, and P models—electric light, fruit basket.

POLICY
Guarantee on cabinet.....15 months from date of factory shipment
Guarantee on system.....15 months from date of factory shipment
Serviced by .....Distributor
Are replacement parts sold to independent service companies .....No

MODERN

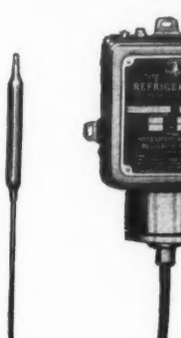
Belleville Refrigeration Co. Main and Florida Sts., Belleville, Ill.

Model No.	L-51	51	61	72	81	92
CABINET SPECIFICATIONS						
Overall dimensions (in.)						
Height	56	59	60	60	64	64
Width	24	26	30	33	33	36
Depth	23	25	23	24	25	26
Inside dimensions of liner (in.)						
Height	27	27	28	28	32	32
Width	19	19	23	26	26	29
Depth	18	18	17	18	19	20
No. of doors	1	1	1	2	1	2
STORAGE CAPACITY						
Gross food storage (cu. ft.)	5.34	5.34	6.33	7.58	8.66	10.74
Net food storage (cu. ft.)	4.80	4.80	5.60	6.85	7.74	8.82
No. of shelves	3	3	3	4	4	5
Total shelf area (sq. ft.)	9.10	9.10	13.10	14.90	16.50	19.10
ICE CUBE TRAYS						
No. of trays	3	3	4	4	5	5
No. of cubes produced	54	54	84	84	105	105
Weight of cubes (lbs.)	3¾	3¾	5½	5½	9	9
THICKNESS OF INSULATION (in.)						
Top	2	3	3	3	3	3
Side	2	3	3	3	3	3
Bottom	2	3	3	3	3	3
Model No.	L-51	51	61	72	81	92
COMPRESSOR SPECIFICATIONS						
Motor size (hp.)	1/6	1/6	1/6	1/4	1/4	1/4
Compressor speed r.p.m.	350	350	350	435	275	275
Compressor bore (in.)	1¼	1¼	1¼	1¼	1⅝	1⅝
Compressor stroke (in.)	1⅜	1⅜	1⅜	1⅜	1¾	1¾
No. of cylinders	2	2	2	2	2	2
PRICE, recommended, installed	$125	$150	$175	$210	$250	$300
WEIGHT, net (lbs.)	275	320	340	385	495	570
MOTOR						
Make of motor.....Wagner & Emerson						
Type of motor .....Capacitor						
COMPRESSOR						
Make of compressor.....Modern						
Type of system.....Conventional						
Type of compressor.....Reciprocating						
Compressor drive .....Belt						
CABINET MATERIALS						
Make of cabinet.....Modern						
Material used for frame.....Wood						
Material used for breaker strip...Formica						
Material used for gasket.....Rubber						
Make of gasket.....Dennis						
Make of insulation.....Dry-Zero						
FINISH						
Cabinet finish (exterior) Model L-51, enamel; all others, porcelain						
Cabinet finish (interior).....Porcelain						
HARDWARE						
Make of hardware...Winters & Crampton						
Process of manufacture...Cast & stamped						
Basic metal of hardware.....Brass						
Finish of hardware.....Chromium						
REFRIGERANT						
Refrigerant used.....Sulphur dioxide						
Amount in system.....Models L-51 & 51, 7 lbs.; 61 & 72, 7½ lbs.; 81 & 92, 8½ lbs.						
CONTROL						
Make of control.....Ranco or Tagliabue						
Type of control.....Temperature						
Temperature regulation method....Manual						
EVAPORATOR						
Make of evaporator.....Fedders						
Evaporator construction.....Tubular						
Metal used .....Copper						
Type of expansion valve....Low side float						
Type of ice cube trays..Fedders aluminum						
CONDENSER						
Make of condenser.....Rome						
Method of cooling .....Fan						
POLICY						
Guarantee on cabinet.....None						
Guarantee on system.....3 years						
Serviced by...Dealer, distributor, factory						
Are replacement parts sold to independent service companies.....Yes						

REFRIGERATION CONTROLS

for Every Need . . . . .

TO INSURE proper operation of your equipment, use Minneapolis-Honeywell Refrigeration Controls. They are suitable for all types of commercial installations, either temperature or pressure, with or without high pressure cutout, and are available in models to meet any pressure or temperature range requirement. Visible scales, positive locking devices, Con-Tac-Tor mercury switches, wide or narrow operating differentials will make you want to use Minneapolis-Honeywell.

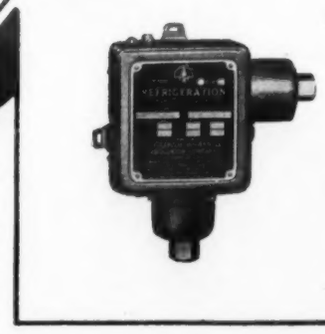


Refrigeration Temperature Control T-414 (above) for remote installation. Ideal for display case application and brine installations of all kinds. Very sensitive. Suitable to wide or close temperature regulation. Available in three standard ranges, +10° to +50° F., −20° to +20° F. and −10° to −50° F.

Refrigeration Airswitch 149 (right) for walk-in box and cooler room control. Thermal element non-corrosive bi-metal not affected by mildly acid atmospheres. Now furnished with positive locking device and adjustable differential

Refrigeration Pressure Control L-414 (above) for all types of installations in which temperature control is affected by regulation of the suction pressure. Range 22" vacuum to 35 lbs. pressure. Differential 3 lbs. minimum to 30 lb. maximum, providing great flexibility in off and on action.

Refrigeration Temperature Control T-413 (below) with high pressure safety cutout. Otherwise same as T-414 . . . The three temperature range models now available with any of the three high pressure cutout ranges.



Refrigeration Pressure Control L-413 (right) with high pressure safety cutout. Otherwise same as L-414. Available in three high pressure cutout ranges, 110 to 135 lbs., 150 to 180 lbs, and 185 to 220 lbs. Special model also available with differential of 4 to 55 lbs. for use with F-12 machines on air conditioning installations.

Minneapolis-Honeywell Regulator Company, 2807 Fourth Avenue South, Minneapolis, Minnesota. Branches and distributors in all principal cities.

MINNEAPOLIS-HONEYWELL
Control Systems

A Proven Refrigerant Gas Leak Detector

Positively detects leaks of Chlorinated Hydrocarbon Refrigerants including Artic, Methyl Chloride, Ethyl Chloride, Trichlore–Ethylene, Methylene Chloride, Carrene, and Dichlorodifluoromethane (F-12 or Freon.)

The rapidly expanding market for electric refrigerating units of all classes has created a real necessity for an efficient, reliable, and yet simple device for testing refrigerant gas leaks. The TURNER Halide Detector meets every requirement in this field and is now regarded as an indispensable service item by installers everywhere.

THOUSANDS IN USE. APPROVED BY ALL LEADING MANUFACTURERS. ORDER A TEST SAMPLE NOW.

WRITE FOR CATALOG "C" AND PRICES

THE TURNER BRASS WORKS, Sycamore, Ill.

ANSUL SULPHUR DIOXIDE

Created a new Standard of Quality

At the time Ansul Sulphur Dioxide was first offered to manufacturers of automatic refrigerators, the normal moisture content was .05%.

Today, the normal moisture content of refrigeration grade sulphur dioxide is .002%. Moisture has practically reached the vanishing point.

It was Ansul that created this new standard of quality through its pioneering efforts in behalf of better refrigeration.

Now, Ansul is proud to say that many makers of America's finest automatic refrigerators have standardized on Ansul Sulphur Dioxide. They know they can depend upon its unchanging quality.

You too, will find it advantageous to specify Ansul Sulphur Dioxide. Your satisfaction is guaranteed.

A brochure has been prepared telling the story of Ansul Sulphur Dioxide. Included are a list of 40 distributors and complete prices. It will be of interest to every one in the industry who uses sulphur dioxide. Write for it today.

ANSUL CHEMICAL COMPANY
MARINETTE » » » » » WISCONSIN

Conserves Space and Gives Greater Display Visibility

Now Over 38,000 Larkin Coils in Daily Use

TYPICAL of the LARKIN COIL principle is Model TC for Top Combination Storage and Display Cases. Compact. Efficient. Maximum room for storage. Display visibility not obstructed.
LARKIN *original* 100% Vertical Surface Aluminum Plate COILS come in 95 Models and Sizes.
Lower operating costs, less dehydration and defrosting are reasons for the widespread use of LARKIN COILS. Quick deliveries on regular and special sizes.

STANDARD FACTORY EQUIPMENT WITH

COPELAND : SERVEL : WILLIAMS ICE-O-MATIC : CARRIER - BRUNSWICK - KROESCHELL : MAYFLOWER : UNIVERSAL : KULAIR : ZEROZONE : M & E : MODERN : STARR : MOHAWK : APEX : DICELER : LIBERTY : H. M. Robins Co., *Export and Others.*

LARKIN Refrigerating Corporation
Originators and Manufacturers
ATLANTA, GA., U.S.A.
U. S. PATENT No. 1,776,235

LARKIN COILS

Tentative Test Procedure Developed by E.T.L.

New York Laboratory Proposes Standards For Rating Household Refrigerators

The following draft of a test procedure for mechanically operated domestic refrigerators has been developed at Electrical Testing Laboratories for the purposes of its work in the quality improvement program, sponsored by the Appliance Committee of the Association of Edison Illuminating Companies, for which the laboratories acts as technical agent. It is now before the technical subcommittee of the appliance committee for consideration.

Through the representation of Electrical Testing Laboratories upon subcommittee no. 3 of Sectional Committee B-38, acting under auspices of the American Standards Association on standardization of domestic types of refrigerators, this has also been placed before that subcommittee.

The test procedure is designed to develop the essential features of performance at any given time. It does not include any tests for durability. It is designed instead to show a refrigerator's effectiveness and efficiency as of a certain date. It is contemplated that the effects of time, including the effects of adverse conditions of service, would be reflected in the results of tests made in accordance with this procedure, before the refrigerators were submitted to such adverse service conditions and after having endured them for a stated period.

Electrical Testing Laboratories would welcome any criticisms, suggestions, or comments in regard to this draft and will undertake to transmit summaries or copies of anything of this nature to the subcommittees named above which are now giving consideration to the matter.

I. PURPOSE

1. Purpose

The purpose of this test code is to furnish two test schedules whereby the relative performance of mechanically operated domestic refrigerators may be determined under standard conditions of operation. A standard procedure for the carrying out of such determinations accompanies the schedules.

The "Minimum Test Schedule" is designed to yield data on certain essential elements of performance with a minimum of expense and time. The "Standard Test Schedule" provides a broader basis for a comparison of performances.

II. TEST SCHEDULES

2. Minimum Test Schedule

A. Refrigerating performance and speed of making ice cubes at an ambient temperature of 90° F., as determined by measurements.

B. Refrigerating performance at an ambient temperature of 110° F., as determined by observation.

C. Refrigerating performance and ice-making ability at an ambient temperature of 60° F., as determined by observation.

3. Standard Test Schedule

A. Refrigerating performance and speed of making ice cubes at an ambient temperature of 90° F., as determined by measurements.

D. Same as test A except with an ambient temperature of 110° F.

E. Same as test A except with an ambient temperature of 75° F.

F. Same as test A except with an ambient temperature of 60° F.

G. Maximum attainable speed of making ice cubes, with the most favorable setting of the regulator, at an ambient temperature of 60° F.

III. STANDARD TEST CONDITIONS

4. General Statement

Both schedules provide for test periods 24 hours in length, during which there is no heat load in the storage space. A given ambient temperature is maintained throughout each test period, and the desired elements of performance are determined by observation or by measurement. Following such a test period a standard quantity of water is placed in the ice trays and the speed of making ice cubes is determined.

5. Condition of Refrigerators

Each specimen tested shall be selected from stock or routine factory production and shall be representative as to construction and adjustment.

The cabinet and refrigerating mechanism shall be assembled and set up exactly as they would be installed in service, and as nearly as practicable in accordance with the intentions of the manufacturer, so far as stated or known, except as limited by the test conditions herein stated.

A representative of the manufacturer or of his authorized servicing agency shall have the opportunity to install the refrigerator in the testing space and to make such adjustments, at an ambient temperature of 90° F., as are normally made in a routine installation on a purchaser's premises.

6. Enclosure

Circulation of air about the refrigerator shall be restricted by placing false partitions, of ¼-in. wall board or similar material, 3 in. from the back and 6 in. from the sides of the cabinet.

The partitions shall extend vertically from the floor to a height of 6 ft.; the width of the side walls shall be such that the front edges of the partition come approximately to the plane of the front surface of the refrigerator.

Such partitions shall be separated by a distance of not less than 2 ft. from similar partitions at the rear of other refrigerators under test, and from test room walls, or heating and cooling devices, used in the control of test room temperatures. Partitions at the sides of adjacent refrigerators must be not less than 18 in. apart.

7. Ambient Temperature and Humidity

The prescribed ambient temperatures shall be maintained at the specified values within + or — 2° F. at a point 3 ft. above the floor and 15 in. behind the center of the rear wall of the refrigerator.

Additional values of ambient temperature, measured at any time during the test periods, in a horizontal plane 3 ft. above the floor and at points 15 in. from the center of the sides, back and front of the cabinet respectively, shall not deviate by more than + or — 1° F. from the average value.

The vertical temperature gradient from the floor to a height of 7 ft. shall not exceed 0.5° F. per foot of vertical distance.

The relative humidity of the ambient air in the test space at any time during a test period shall be between 40 and 60%, at the test space temperature. Suitable means shall be provided to maintain this condition.

8. Air Circulation

Air circulation in the room, whether natural or by fan, shall be such as is required to secure the specified uniformity of temperature distribution but shall cause no direct draft upon the refrigerator under test. The refrigerator under test shall be so placed or shielded as not to be affected by direct radiation to or from the cooling or heating equipment.

If the test room has outside windows, such windows shall be provided with suitable radiation shields.

9. Constancy of Temperatures

A test for record purposes shall not be begun until the average internal or ambient temperatures, at any point, in two successive two-hour periods, do not differ by more than 1° F. The ambient temperature at any instant must not differ by more than + or — 2° F. from the average value throughout the test period.

10. Refrigerator "Load"

All tests of refrigerating performance described herein shall be made with the food shelves empty (i.e., with "no load"); and with the ice-cube trays and frozen food compartment filled with frozen water; when ice cubes are to be formed the ice trays shall be provided with a water "load" of 0.5 lb. of water at 70° F. (+ or — 5° F.) per net cu. ft. of the food storage space which has been determined as prescribed in subdivision V.

11. Adjustment of Refrigerator Regulator

The ambient temperature of the testing space shall be brought to 90° F. All ice trays shall be filled with water and where there is a compartment provided for frozen food and equipped with a watertight container, this container also shall be filled with water.

The required thermometers having been placed in the refrigerator, the doors of the refrigerator shall be closed and the mechanism set in operation; the temperature regulator (if one is provided) shall be set at the position corresponding to the highest internal temperature.

Operation shall be continued under these conditions until temperatures are constant, as defined in section 9. The final average internal temperature shall be noted.

Additional tests shall then be run with the regulator set successively, beginning from the highest temperature position, at ¼, ½, ¾, and full scale. From the average internal temperatures corresponding to these various regulator positions, the position of the regulator which will produce an average internal temperature between 48 and 50° F. shall be determined by interpolation and the regulator set at that position.

Correctness of the estimate shall be corroborated by operation under this condition until the average internal temperature is changing at a rate less than 1° F. in 2 hrs. If an average internal temperature between 48 and 50° is not attained in this test, additional trial settings of the regulator shall be made until the desired result is secured.

Having determined the proper position of the regulator, this setting shall be maintained throughout all of the tests (except test G, section 18).

12 Electric Power or Gas Supply

Power supplied to an electric motor shall be at the rated voltage within + or — 5%. Gas for a gas-operated machine shall be "manufactured" gas (unless otherwise specified) having a thermal content of 535 (+ or — 15) B.t.u. per cu. ft., supplied at a pressure of 3.5 (+ or — 0.25) in. of water.

IV. TEST PROCEDURE
(a) Tests A, D, E, and F

13. General

The temperature regulator shall be at the position determined as prescribed in Section 11 and the ice trays and frozen food compartment shall be full of ice.

The ambient temperature having been adjusted to the prescribed value (110, 90, 75, or 60° F.) within + or — 2 ° F., the machine shall be operated under that condition for a test period of approximately 24 hours after stable thermal conditions in the refrigerator have been reached (see Section 9). The start and the end of each test period shall be coincident with the commencement of operation of the refrigerating mechanism.

14. Measurements in a Performance Test

Temperatures in the food storage space shall be observed throughout the test period, at the 4 points and in the manner specified in subdivision VII.

The energy consumption shall be recorded initially, and again after the elapse of approximately 24 hours from the start of the test; additional interim observations of energy may be made as desired; the instant of observation in every case shall be that at which the refrigerating mechanism begins to operate. The number and duration of the periods of operation of the refrigerating mechanism shall be determined by suitable means (see subdivision IX).

15. Ice-Making Test

This test follows the 24-hr. performance test in each case where required. In starting the test, the door shall be opened (for as short a time as possible) and the necessary number of ice trays shall be removed to receive the standard water "load" (Section 10).

The sleeves selected to receive the trays containing the water load shall be those indicated by the formation of ice during the adjustment of the regulator (Section 11).

The frozen water in the other sleeves of the cooling unit ("evaporator") shall remain undisturbed. Only metal ice trays shall be used for this test, unless, of course, the maker has provided only non-metallic trays.

As many trays as possible shall be filled with water at 70° F. (+ or — 5° F.), to within 3/16 in. from the top: the balance of the water required shall be placed in another tray. The full trays shall be provided with thermocouples as specified in subdivision VIII. The trays being ready the door of the refrigerator shall be opened for exactly 30 seconds during which time the trays shall be inserted.

As stated in section 13, the start of the test period is coincident with the commencement of operation of the refrigerating mechanism, and if energy consumption during this period is to be determined, the means for measuring energy consumption should be observed at that time.

It is desirable that the insertion of the water load should take place as soon as possible after the commencement of an operating period. The test is conducted as prescribed in subdivision VIII. The test is terminated as provided in section 38; if energy is being measured the meter should be read at the commencement of the next operating period.

(b) Test B

16. Observation of Performance at 110° F.

This is the simplified form of test D, called for under the "Minimum Test Schedule." In this test the rate of freezing water and measurements of internal temperatures and of energy consumption are omitted. The operation of the mechanism is observed until three successive commencements of operation have taken place, or until 24 hrs. have elapsed.

35. Check of Temperature Measuring Instrument

Each device for measuring internal temperature shall be checked before beginning the tests, and again upon completion of the tests. The average corrections obtained in these checks shall be used to correct the values obtained in all tests.

VIII. MEASUREMENT OF ICE TRAY TEMPERATURES

36. Method of Measurement

The temperature of the water in the ice trays during the ice making test shall be measured by thermocouples without shielding tubes, the wires of the thermojunction in the water being not larger than No. 20 Awg. There shall be at least one thermocouple for each full tray of water and this thermocouple shall be placed in the cell where freezing will probably be completed last.

The junction shall be placed as nearly as possible at the center of the cell. Its attachment to the grid and tray shall be sufficiently rigid to insure that its position is not altered during the process of inserting the tray.

37. Frequency of Measurement

The e.m.f. generated in the thermocouple preferably shall be recorded with a recording potentiometer. If indicating instruments are used, readings of e.m.f. (or temperature) shall be taken at intervals not longer than 15 minutes and the time-temperature curves plotted.

38. Determination of Freezing Time

Ice shall be considered as completely frozen at the instant where the change in slope of the temperature curve definitely indicates that a further reduction in temperature has set in following the constant temperature shown during the freezing period.

IX. MEASUREMENT OF ENERGY CONSUMPTION

39. Electrically Operated Machines, General

For electrically operated machines, provision shall be made for measuring the energy consumption and for obtaining a record from which it shall be possible to determine the number, frequency, and duration of the periods of operation.

40. Measurements of Electrical Energy

The electrical energy consumption shall be determined with a watthour meter which shall be of such capacity that the energy may be observed to at least 0.02 kwh. Energy shall be measured at the terminals (attachment plug) of the leads provided by the manufacturer. A voltmeter shall be connected at this point for use in maintaining the voltage at the rated value as required in Section 12.

41. Time Measurement

It is suggested that a synchronous self-starting electric clock be connected across the electric motor terminals to supply readings of total running time. The connection should be such that the energy consumption of the clock is not measured by the watthour meter.

42. Gas-Operated Machines

The quantity of gas consumed shall be measured with a meter of such capacity that the consumption may be determined to at least 1 cu. ft. The quantity of cooling water used shall be measured with a water meter of such capacity that the consumption may be determined to at least 1 cu. ft.

X. REPORT OF TEST RESULTS

43. Minimum Test Schedule

The report of the test results shall contain at least the following:

(a) Net food storage space, the total water or ice capacity, shelf area, and the standard quantity of water "load," in pounds, inserted in all tests.

(b) Average ambient temperature and relative humidity in all tests.

(c) Average food storage space temperature (locations 2, 3, and 4) during the

(*Concluded on Page 29, Column 1*)

TESTING STANDARDS DEVELOPED BY E.T.L.

(*Concluded from Page 28, Column 5*)

24-hr. refrigerating performance test with an ambient temperature of 90° F. (test A).

(d) Average milk-compartment temperature (location 1) during the 24-hr. period of test A.

(e) Maximum temperature occurring in food storage space, averaged over a 1-hr. interval, following insertion of water load in Test A.

(f) Energy or fuel consumption during test A, expressed on a basis of exactly 24 hrs. In the case of certain absorption-type refrigerators, the volume of the cooling water, in cu. ft. (or gals.) per day, shall also be stated.

(g) Time required to freeze the standard quantity of water in test A.

(h) Number of cycles of operation per 24-hrs. at an ambient temperature of 110° F. (test B).

(i) Report on freezing of water in the food storage space during the 24-hr. refrigerating performance test of test C.

(j) Time required to freeze the standard quantity of water with an ambient temperature of 60° F. (test C).

44. Standard Test Schedule

The report of the test results should contain at least the following:

(a) Net food storage space, the total water or ice capacity, shelf area, and the standard quantity of water "load," in lbs. inserted in all tests.

(b) Average ambient temperature and relative humidity in all tests.

(c) Average values of internal temperatures at each of the four test points and the average temperature of the food storage space (locations 2, 3, and 4) during the 24-hr. test period, at ambient temperatures of 90, 110, 75, and 60° F. (tests A, D, E, and F respectively).

(d) Electrical energy, or gas consumption and the amount of cooling water used (if any), expressed on a basis of exactly 24-hrs. refrigerating performance, at each ambient temperature (tests A, D, E, and F).

(e) Number of cycles of operation per day and the percentage operating time of the mechanism, at each of the ambient temperatures (tests, A, D, E, and F).

(f) Time to freeze the standard quantity of water at each of the ambient temperatures (tests A, D, E, and F).

(g) Maximum and minimum temperatures reached in the food storage space and in the milk compartment, averaged over a 1-hr. interval, during the ice-making tests of test A, D, E, and F.

(h) Time required to freeze the standard quantity of water with the extreme "cold" setting of the temperature regulator and an ambient temperature of 60° F. (test G).

(i) Minimum temperatures reached in the food storage space and in the milk compartment during test G.

(j) Average temperature of the food storage space obtained at various settings of the temperature regulator at an ambient temperature of 90° F. (see Section 11).

(c) Test C

17. Observation of Performance at 60° F.

This is the simplified form of Test F, called for under the "Minimum Test Schedule." In this test, measurements of ice tray temperatures, internal temperatures and energy consumption and the determination of the cycles of operation are omitted.

Instead, when beginning the test, two shallow metal vessels, not more than 2 in. in diameter and weighing not more than 0.1 lb. each, are provided with 1 oz. of water each, and set on different shelves of the food storage space (but not in the "milk compartment"; see section 29) judged to have the lowest temperatures.

The water in these dishes is examined at 12 hrs. and 24 hrs. after insertion to determine if it has been frozen, the door being opened for exactly 30 seconds each time, for the inspection.

At the end of the 24-hr. test period the standard quantity of water is inserted in the prescribed manner; the ice trays are examined at intervals of 4 hrs. after insertion, to ascertain the extent of freezing, until the water in all ice cells has been frozen. The door shall be open exactly 30 seconds at each inspection.

(d) Test G

18. Maximum Speed of Making Ice at 60° F.

Normally this test will follow test F. The ambient temperature being 60° F. (+ or — 2° F.) the test is started according to the standard routine described in section 15, except that, upon insertion of the water load the temperature regulator shall be moved to the position designed to produce lowest internal temperatures.

Measurements of ice tray temperatures and of internal temperatures shall be made as in sections 14 and 15; measurement of energy consumption and observation of the number and duration of the periods of operation of the refrigerating mechanism may be made as desired.

V. COMPUTATION OF NET FOOD STORAGE SPACE AND SHELF AREA

(Since this section is a practically literal transcription of parts of the recommended standard method of computing gross volume, net food storage volume, and food shelf area, as adopted on May 18, 1931, by the Nema Refrigeration Division, it is omitted here. It was published in full on page 49 of the 1932 Refrigeration Directory and Market Data Book. Copies are available from Electric Refrigeration News—Editor.)

23. Average Distance Between Shelves

The average height of each clear space between shelves shall be determined and reported.

VI. MEASUREMENT OF TEST ROOM (AMBIENT) TEMPERATURE

24. Point of Measurement

For purposes of determination of refrigerator performance, ambient temperatures shall be measured at one point for each refrigerator under test, namely, 15 in. behind the center of the rear wall of the refrigerator and 3 ft. above the floor.

25. Method of Measurement

The ambient temperature may be measured with thermocouples, resistance thermometers, or glass thermometers. The temperature-sensitive part of the thermometric device shall be in good thermal contact with a mass having a heat equivalent of not less than 10 grams or more than 20 grams of water.*

26. Graphic Record

There shall be at least one temperature-recording instrument to show the constancy of the ambient temperature; its sensitivity shall be such as to show a change in temperature at least as small as 0.5° F. This may be one of the indicators prescribed in the preceding paragraph.

27. Frequency of Measurement

Preferably, all indicators of ambient temperature should be connected to a recording instrument. In lieu of a recording instrument readings of ambient temperature shall be taken at intervals not greater than 15 minutes in length.

28. Check of Temperature Measuring Instrument

The ambient temperature thermometers shall be checked before beginning the tests and again upon completion of the tests. The average corrections so determined shall be applied to the readings in all tests.

VII. MEASUREMENT OF INTERNAL TEMPERATURES

29. Points of Measurement

Internal temperatures shall be measured at not less than four (4) points as follows:

1. In the space obviously intended by the manufacturer as the "milk compartment," 5 in. above the floor or shelf, and not less than 2 in. from the side wall of the cooling unit. Where the manufacturer's intention in this respect is not evident, use shall be made of the estimated coldest location, capable of receiving a 1-qt. milk bottle, as determined by the testing authority.
2. In the food storage space, 5 in. below the top of the space and midway between the side wall and the cooling unit.
3. In the food storage space, 5 in. above the center of the bottom of the space (floor).
4. In the food storage space, at the center of the horizontal plane midway between the top and bottom of the space. If this locates the temperature-sensitive element less than 2 in. from any surface of the cooling unit, the element shall be removed horizontally to a distance of 2 in. from such surface.

30. Average Temperature of Food Storage Space

The points designated in section 29 shall be referred to as locations Nos. 1, 2, 3, and 4 respectively. Temperatures at locations 2, 3, and 4 shall be averaged separately to provide one value for the "average temperature of the food storage space."

31. Average Temperature of the Milk Compartment

The average temperature at location 1 shall be taken as the "average temperature of the milk compartment."

32. Method of Measurement

Internal temperature shall be taken with either thermocouples or resistance thermometers. The thermocouples or resistance thermometers shall be in good thermal contact with a mass having a heat equivalent of not less than 10 grams nor more than 20 grams of water. (See footnote, Section 25.)

These shall be supported in the refrigerator in such manner that they do not come into contact with the shelves. In each case the center of mass of the temperature-sensitive element shall be located as prescribed in section 29 within ½ in.

33. Disposition of Lead Wires

Leads from the thermocouples shall be brought outside of the cabinet in such a manner as to interfere as little as possible with the door seals. In the case of resistance thermometers, it is suggested that thin strip conductors be used at the points of emergence.

34. Frequency of Measurement

Temperatures shall be recorded graphically wherever possible, the recording device being sufficiently sensitive to show a change in temperature at least as small as 0.5° F. An alternative method is to observe manually all temperatures (by means of an indicating potentiometer or a bridge arrangement), at intervals not longer than 15 minutes.

*For example, the bulb of a resistance thermometer might be inserted in a hole in a brass cylinder 1 in. in diameter; 2 in. long and weighing between 5 and 6 oz.

Manufacturer NOTE:

Now you can get your hard and semi-hard rubber Gliders—Strips—Lid Rings—Lid Knobs and Moldings at Best Prices.

Low Overhead and Years of Experience Make our Prices Possible.

Send us your Blue Prints NOW!

VULCANIZED RUBBER CO.
261 Fifth Avenue
New York, New York
Established 1879

ASRE SECTION HEARS TALK ON CORROSION

LOS ANGELES—Members of the Los Angeles section of the American Society of Refrigerating Engineers heard a discussion of means to retard corrosion in brine installations when Clifford B. Hill addressed the society here on March 13.

"An important accepted fact is that concentrated solutions of pure sodium chloride and pure calcium chloride are corroded less than the standard distilled water," said Mr. Hill. "Such being the case, our first interest naturally would be to produce brines of as pure quality as is economically possible.

"Any impurities assisting in these solutions may have a direct bearing on starting and continuing corrosion The insolubles would settle out and form different coatings; and, according to theory, if these coatings were continuous and unbroken, the corrosion rate possibly would be lessened.

"If, however, these coatings were not continuous, but broken—as it would be in these cases—the corrosion would be accelerated with the trend toward localizing or pitting."

Impurities in Manufacture

Undoubtedly the manufacturer pays due attention to the quality of limestone and the purity of sodium chloride used in manufacturing calcium chlorides by the ammonia soda process, the speaker said, but asserted that it stands to reason that impurities present in the sodium chloride or in the limestone, could be carried on into the by-product, calcium chloride.

Any magnesium as a possible impurity in the limestone would produce magnesium chloride, he explained. Any free lime in the calcium chloride might tend to form calcium oxychloride. It was his theory that one would at least be better off without these impurities present. Their removal can be expected, he said, by putting the calcium into solution and running through filters.

"We have found it practical to dissolve the sodium chloride and run this solution through filtration. We then have pure brine, roughly speaking, and theory states that pure brines are not acid, and are free from oxygen, and are practically noncorrosive," said Mr. Hill.

"Our first thought from this theory would be the elimination of this oxygen as much as possible. Possibly the first most important item would be the maintenance of a definite pH. The rate of corrosion of brine will be lowered by raising the alkalinity of the brine. This point will vary, and should be determined for each individual tank. Practice indicates that where zinc is exposed, a pH of from 8.2 to 8.5 is desirable. Where only iron is to be considered, a much higher pH seems beneficial.

Chromates Reduce Corrosion

"It is also stated that the addition of chromates to brine tends to pacify corrosion. The products of corrosion are essentially ferrous rust and ferric rust. In an alkaline solution the ferric rust or ferric oxide forms ferric hydroxide.

"It is claimed and accepted that the ferric hydroxide formed is in two states; namely, colloidal and the practically insoluble ferric hydroxide. The colloidal ferric hydroxide is, according to theory, the active catalyzer for continued corrosion; any material which removes or breaks up this colloidal form will tend to inhibit corrosion," he said.

"Chromates have the highest precipitative action on colloidal ferric hydroxide. In addition, chromates form complex films on metals that are protective. This is borne out by observation. The addition of sodium hydroxide along with the chromates would aid in changing any ferrous hydroxide that might be present, to the less soluble ferric hydroxide; and establish the desired alkalinity.

"Any ferric chloride that would have been formed in the brine, that was in an acid or neutral condition, would change with the addition of sodium hydroxide to the practically insoluble ferric hydroxide."

Discussing further treatment of brines, Mr. Hill referred to some A. S. R. E. experiments in which mixtures of silicate of soda and chromates were used, and said of the experiments:

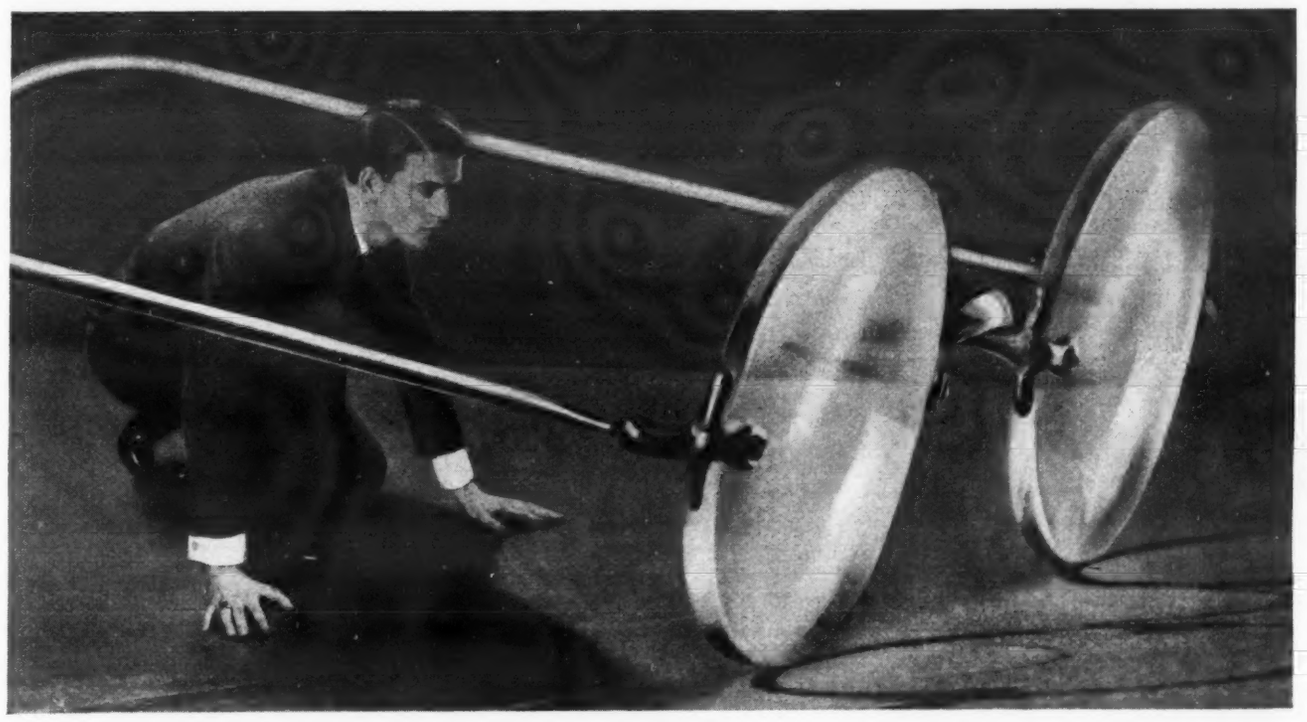
"The sodium silicate would break up into sodium hydroxide and silica dioxide. The sodium hydroxide would act as sodium hydroxide added with the chromates. The silica dioxide undoubtedly combines in some measure with the metals to form protective coatings. This method also assists in carrying insolubles out of suspension in the brine.

Effects of Filtration

"'We have found that to filter out these insolubles, which would include the products of corrosion, should eliminate the possibility of any catalytic action of any of the products of corrosion, or the reversion of the insoluble ferric hydroxide to the dangerous corrosive colloidal ferric hydroxide.

"Different types of filters have been tried, ranging from sawdust and sand filters to the plate and frame. In the plate and frame filter, charcoal and filter earths are used as filtering aids; the active charcoal having a tendency to remove dissolved gases, and the filter earths to help filtration."

In closing Mr. Hill said, "In this age of no profits, the refrigeration industry cannot afford to overlook the loss resulting from brine corrosion; and any and all plausible theories of still further reducing this waste, bears our consideration."



Peek through your
CUSTOMER'S
glasses

You'll read new meaning in the words: "Insulated with Corkboard!"

CHANGE your point of view for a little while. Look through your customer's glasses. See how impressive these words sound: "This equipment is insulated with Armstrong's Corkboard!"

You, as a customer, know corkboard. You are familiar with its thirty-year record as standard insulation in the ice and cold storage industry. You can be easily convinced that the display case or cabinet insulated with corkboard is the one you want!

* * *

Put *your* equipment in this preferred class. Standardize on Armstrong's Type LK Corkboard. When you add its efficiency to the cases you make, you add also a powerful sales argument in its name!

We would like to tell you more about Type LK Corkboard. You'll be especially interested in its low coefficient of thermal conductivity — .269 B.t.u. — its light weight, rigid strength, high resistance to moisture, and lasting efficiency. Let us send you complete data, and a sample for test. Armstrong Cork & Insulation Co., 917 Concord St., Lancaster, Pa.

Armstrong's Ⓐ Product

Armstrong's LK Corkboard protects cabinets made by C. Nelson Manufacturing Co.

Armstrong's TYPE LK Corkboard In

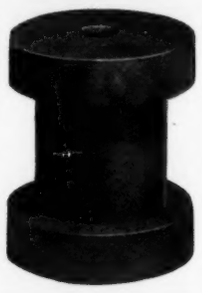
Efficient, Durable Insulation for Refrigerated Ea

PATENTS
Searches, Reports, Opinions by a Specialist in REFRIGERATION
H. R. VAN DEVENTER
Solicitor of Patents - Refrigeration Engineer
342 MADISON AVE. NEW YORK

COMPRESSOR MOUNTING

Absorbs vibration. Promotes faster freezing, more Crystalline ice. Aids in delivering full efficiency built into unit. Made of fine pure gum live rubber. Write for sample and prices.

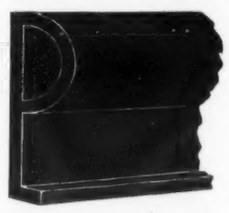
Ask about our other important accessories for electric refrigeration.



THE AETNA RUBBER CO.
Ashtabula, Ohio.

Testing Laboratory
For refrigerators and refrigerating equipment
George B. Bright Co.
Refrigerating Engineers and Architects
2615 12th St., Detroit, Mich.

GASKETS
for **Refrigerator Doors** *and* **Cooling Rooms**
ALL-RUBBER (*Extruded*) **and RUBBERIZED FABRIC**



Research by the finest chemists in the industry has developed an exceptionally high grade rubber compound, which will give service beyond the terms of refrigerator guarantee.

It will not crack, dry out, stain, and has a great resistance to animal fats, and greases.

No conformation too complicated.

Let us send you samples. Over two hundred stock dies.

Rubberized fabric gaskets, all sizes, shapes, and colors.

Send your problems to our Engineering Department.

JARROW PRODUCTS CORPORATION
143 W. AUSTIN AVE.
CHICAGO, ILL.

McCORD
REFRIGERATION
PRODUCTS

Commercial Evaporators
Domestic Evaporators
Condensers
Easy-Out Ice Trays
Spiral Finned Tubing
Spiral Copper Finned Iron, Steel or Copper Pipe

McCORD RADIATOR & MFG. CO.
DETROIT, MICH.

PATENTS

ISSUED FEBRUARY 28, 1933

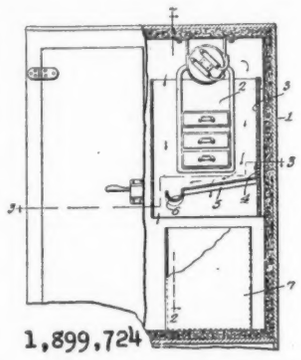
(Continued from Last Issue)

1,899,710. STRUCTURE FOR REFRIGERATORS AND OTHER DEVICES. Charles P. Minning, Los Angeles, Calif. Filed April 15, 1931. Serial No. 530,220. 8 Claims. (Cl. 72—48.)

1. A structure comprising inner and outer nettings, intervening separated nettings of smaller mesh than the inner and outer nettings and continuous cementitious material between the inner and outer nettings and the intervening nettings, making layers with air spaces between the intervening nettings.

1,899,724. DEFROSTING ATTACHMENT FOR MECHANICAL REFRIGERATORS. Forest O. Riek, Rhinelander, Wis. Filed June 16, 1930. Serial No. 461,444. 1 Claim. (Cl. 62—89.)

The combination with the casing and unit of a mechanical refrigerator, of a relatively deep water receptacle removably mounted in the casing and covering a small horizontal area which is smaller than the height of the receptacle, and a laterally and rearwardly inclined deflecting member below the entire area occupied by the unit for delivering water into the container, said member having a gutter along its lower edge, an attaching flange at its opposite edge secured to a wall of the casing, and an upstanding retaining flange between the gutter and the attaching flange, said member being spaced at three sides



1,899,724

from the walls of the casing to provide air passages, the gutter being positioned to drain into the receptacle.

1,899,852. TEMPERATURE CONTROL MEANS FOR REFRIGERATION COMPARTMENTS. Lee S. Chadwick, Shaker Heights, Ohio, assignor to Perfection Stove Co., Cleveland, Ohio, a Corporation of Ohio. Filed Jan. 20, 1930. Serial No. 424,223. 11 Claims. (Cl. 62—95.)

1. Refrigeration apparatus comprising an enclosure for the refrigeration compartment, a cooling unit within said compartment, an open bottom casing about the cooling unit having an opening spaced above its bottom, and a drip tray removably supported below and adjustable toward and from the open bottom of said casing.

REISSUE

18,755. AIR CONDITIONING MEANS. Fred John Day, Los Angeles, Calif. Original No. 1,842,660, dated Jan. 26, 1932, Serial No. 384,134, filed Aug. 7, 1929. Application for reissue filed Aug. 9, 1932. Serial No. 628,099. 6 Claims. (Cl. 62—24.)

1. In a refrigerator car, the combination with an ice bunker having an upper opening affording communication between the ice bunker and the interior of the car; of a detachable panel adapted to overlie said opening, a fan mounted upon and supported by said panel, there being an aperture through said panel adapted to direct a current of air created by said fan from the upper interior portion of the car through said panel into said bunker.

ISSUED MARCH 7, 1933

1,899,995. AIR CONDITIONING APPARATUS. Pehr W. Stromberg, Somerville, Mass., assignor of one-half to Willsie M. Mattison, Ogdensburg, N. Y. Filed July 26, 1932. Serial No. 624,673. 4 Claims. (Cl. 261—115.)

1. An air conditioning apparatus having, in combination, a casing embodying therein a humidifying compartment, a blower adapted to create a current of air to be purified through said compartment, means to create a spray in the humidifying compartment, means to temper said spray, a plurality of baffle plates interposed between the blower and spray adapted to diffuse air passing therebetween, a plurality of other baffle plates adapted to intercept the saturated air and arrest the impurities entrained therein, and means to automatically control the supply of cooling fluid and the actuation of the blower.

1,900,306. DAIRY PRODUCTS REFRIGERATOR. Roswell R. Shirley, Rockford, Ill. Filed July 16, 1928. Serial No. 293,178. 6 Claims. (Cl. 220—9.)

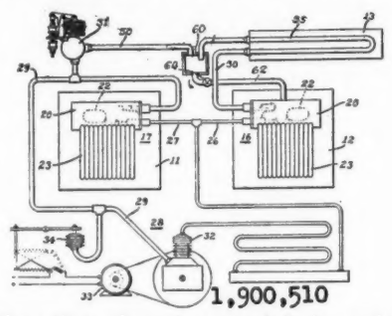
1. In a refrigerator generally of the character described, a box comprising an open-top sheet metal shell, the upper edges of said shell being bent inwardly to define shoulders, a top frame of wood or the equivalent heat insulating material fitting in said shell below and in abutment with the aforesaid shoulders, an open-top sheet metal container having the upper open end thereof fitting inside said frame and provided with outwardly projecting flanges bearing against the under side of said frame to support the latter and be held thereby in spaced relation to the shell, there being heat insulating material about the sides of said container within the shell and beneath said container, a bottom for said shell serving to retain the insulating material and to hold the aforesaid elements in their stated relation, and a lid for said box serving as a closure for the open top thereof.

1,900,501. AIR CONDITIONING APPARATUS. Edward McKinney Hunt, Montclair, and Edward L. Fonseca, Newark, N. J., assignors to The Wilcolator Co., Newark, N. J., a Corporation of Delaware. Filed March 12, 1929. Serial No. 346,285. 16 Claims. (Cl. 261—116.)

1. In an air conditioning device the combination of at least one vertically extending straight tube, two housings, one communicating with each end of said tube, the upper housing having an air intake opening and the lower housing having an air discharge opening, a liquid spray device introduced into said tube adjacent the upper end thereof for creating suction therethrough, a plurality of baffles in said lower housing extending in alternate directions into the air stream for precipitating surplus water therefrom, and a gutter on at least one of said baffles for conducting away the liquid deposited thereon.

1,900,510. REFRIGERATING APPARATUS. David E. Maccabee, Dayton, Ohio, assignor to Frigidaire Corp., Dayton, Ohio, a Corporation of Delaware. Filed Oct. 30, 1928. Serial No. 316,005. 11 Claims. (Cl. 62—115.)

5. Refrigerating apparatus comprising a refrigerating element including a reservoir for liquid refrigerant, a second re-



1,900,510

frigerating element connected in series with the reservoir and disposed above the level of liquid therein, the connection being arranged to deliver both liquid and gaseous refrigerant to the second element, and a drain from the outlet of the second refrigerating element to the first element.

1,900,526. CONTROL MECHANISM FOR EVAPORATORS. Franklin G. Slagel, Buffalo, N. Y., assignor to Fedders Mfg. Co., Inc., Buffalo, N. Y., a Corporation of New York. Filed May 29, 1930, Serial No. 457,448. Renewed Jan. 10, 1933. 4 Claims. (Cl. 62—126.)

1. In a refrigerating system, an evaporator, means for automatically admitting refrigerant and oil in solution into the evaporator to maintain a substantially constant liquid body therein, a suction outlet conduit leading from the vapor space in the evaporator to the exterior, a cup in the evaporator, a wick depending into the liquid body and extending into the cup, and means establishing a conduit connection between the cup and the suction outlet.

1,900,576. REFRIGERATOR. Charles A. Moore, Edina, Minn. Filed Jan. 26, 1931. Serial No. 511,285. 2 Claims. (Cl. 62—89.)

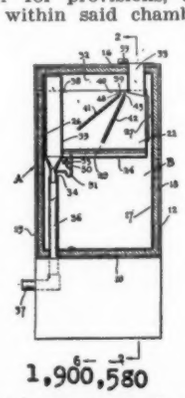
1. In a refrigerator, a cabinet enclosing a provision chamber, a refrigerating medium within said chamber, an upright conduit within the chamber leading downwardly thereinto from the outside, for the gravitating ingress of air therethrough to the chamber, said cabinet having an egress opening in the upper portion thereof through which air from the corresponding portion of the chamber is compressed to the outside.

1,900,579. REFRIGERATOR. Charles A. Moore, Edina, Minn. Filed March 19, 1930. Serial No. 437,010. 3 Claims. (Cl. 62—89.)

2. In a refrigerator, a cabinet providing a chamber, a casing within the chamber spaced from inner walls thereof and providing a provision compartment interiorally isolated from the interior of the cabinet, said cabinet including a door forming a side wall of the casing and affording access to the compartment therein, means in said door for the ingress of air to the compartment from the atmosphere outside of the cabinet, means also in said door for the egress of air from said compartment to the outer atmosphere, and an element within the chamber for refrigerating and circulating the air therein, about said casing, and for effecting the ventilation of said chamber, by gravity, through said means.

1,900,580. VENTILATED REFRIGERATOR. Charles A. Moore, Edina, Minn. Filed Feb. 2, 1931. Serial No. 512,842. 16 Claims. (Cl. 62—89.)

6. In a refrigerator, a cabinet enclosing a chamber for provisions, a partitioning structure within said chamber providing,



1,900,580

a refrigerant compartment communicating at its upper portion with the upper portion of the provision chamber and at its lower portion with a lower portion of said chamber, said partitioning structure comprising spaced walls forming an air passageway therebetween opening at the lower portion of said structure for the egress of air therefrom into the provision chamber, means for the ingress of outer air into said passageway at the upper portion of said structure, said passageway being open at the upper portion of said structure for the ingress of air thereto from the upper portion of the chamber, and means for the egress of air from said chamber.

1,900,644. REFRIGERATION APPARATUS. Raymond C. Haimbaugh, Chicago, Ill., assignor to Grigsby-Grunow Co., Chicago, Ill., a Corporation of Illinois. Filed June 6, 1931. Serial No. 542,560. 4 Claims. (Cl. 62—116.)

1. A refrigerator cabinet having a chamber in the top portion thereof into which is adapted to be disposed a mechanical refrigerating unit requiring a circulation of cooling air, said chamber being closed at the top thereof, a side of said chamber having apertures therethrough whereby air may be sucked in and driven out from said apparatus chamber, a flue disposed over one side of said cabinet and covering said apertures, a partition dividing said flue into separate conduits, said flue being provided with an inlet mouth at the bottom thereof and with an exhaust at the upper portion thereof.

1,900,650. ABSORPTION REFRIGERATING APPARATUS. Donald Branch Knight, Brooklyn, N. Y., assignor to Electrolux Servel Corp., New York, N. Y., a Corporation of Delaware. Filed March 2, 1931. Serial No. 519,316. 12 Claims. (Cl. 62—119.5.)

6. An absorption refrigerating system of the pressure equalized type including a generator, an analyzer above said generator and in open communication with the vapor space in the latter, an absorber located such that the normal liquid level therein is below the normal liquid level in the generator, a separating chamber above said analyzer, a vapor liquid lift connected between said absorber and said separating chamber, a conduit for supplying vapor from said analyzer to said liquid lift, and a conduit having a liquid trap from said separating chamber to said analyzer.

1,900,656. HEAT PUMP. Carl Georg Munters, Stockholm, Sweden, assignor, by mesne assignments, to Electrolux Servel Corp., New York, N. Y., a Corporation of Delaware. Filed May 5, 1931, Serial No. 535,105, and in Germany Sept. 27, 1930. 13 Claims. (Cl. 103—255.)

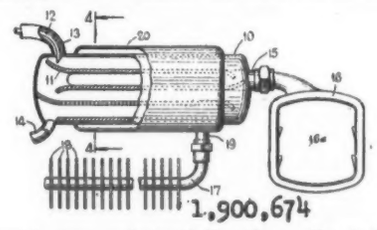
1. A liquid pump comprising a fluid tight vessel, means for heating said vessel, a container above said vessel, a pipe connected to the bottom of said container and terminating within and adjacent the bottom of said vessel, baffling means within said pipe, and a rising pump pipe connected at one end to the lower part of said vessel and terminating at its other end in a gooseneck.

1,900,661. CONDUIT CONNECTION FOR COMPRESSORS. Frank D. Peltier, Evansville, Ind., assignor, by mesne assignments, to Servel, Inc., New York, N. Y., a Corporation of Delaware. Filed Feb. 18, 1930. Serial No. 429,280. 1 Claim. (Cl. 137—69.)

In a connecting device of the character described, the combination with a securing wall formed with a return passage therein having a receiving chamber and a pair of grooves in stepped relation about the outer end of said chamber, of a valve member comprising a flanged sleeve having a collar disposed to fit into the innermost of said grooves and a fluid-actuated valve disposed therein, a packing member disposed in the outermost of said grooves and disposed to close the joint between said collar and its groove, an elbow coupling having a boss adapted to fit slidingly over said sleeve and provided with lugs extending laterally from the elbow, and tension members to draw the boss of said coupling into tight engagement with said packing member.

1,900,674. TWO-TEMPERATURE EVAPORATOR. Robert S. Taylor, Evansville, Ind., assignor to Electrolux Servel Corp., New York, N. Y., a Corporation of Delaware. Filed Feb. 7, 1931. Serial No. 514,154. 13 Claims. (Cl. 62—95.)

5. A cooling element comprising a casing enclosing an evaporating chamber, connections for the circulation of gas through said chamber, an inlet for cooling



1,900,674

liquid, two substantially thermally independent liquid spreading members in said chamber arranged to receive liquid from said inlet and located serially with respect to the gas circulation, and independent means for transmitting heat from without said casing to each of said members.

1,900,698. INSULATING BODY. George H. Ellis, St. Paul, Minn., assignor to The Insulite Co., Minneapolis, Minn., a Corporation of Minnesota. Filed Aug. 10, 1929. Serial No. 385,082. 8 Claims. (Cl. 92—21.)

1. A process for making thick heat insulating bodies which consists in fiberizing wood to produce a coarse fiber too long and too coarse for the coarsest grade of paper, hydrolizing the pump, forming the pulp into a thick felted sheet, drying, and then simultaneously pressing and heating the felted product while dry.

1,900,699. WATERPROOF INSULATING BODY. George H. Ellis, St. Paul, Minn., assignor to The Insulite Co., Minneapolis, Minn., a Corporation of Minnesota. Filed Nov. 15, 1929. Serial No. 407,580. 8 Claims. (Cl. 92—21.)

1. A process for producing hard woodlike bodies which consists in preparing raw wood pulp and mixing therewith pulverized asphalt, manipulating the batch to form a felted sheet, drying, and then submitting to a pressure within the range of from one hundred fifty to two hundred pounds per square inch at a temperature of approximately three hundred fifty degrees Fahrenheit for from fifteen to thirty minutes.

1,900,741. ICE PAN. Franklin G. Slagel, Buffalo, N. Y., assignor to Fedders Mfg. Co., Inc., Buffalo, N. Y., a Corporation of New York. Filed July 29, 1929. Serial No. 381,976. 4 Claims. (Cl. 62—108.5.)

1. A pan for the production of frozen liquids in mechanical refrigerating apparatus comprising a tray, a tray extension having a portion paralleling a wall of the tray, a plate and handle member, said extension and member having locating bosses adapted to register in nested relation, and means for securing said member to the extension.

1,900,742. EVAPORATOR. Franklin G. Slagel, Buffalo, N. Y., assignor to Fedders Mfg. Co., Inc., Buffalo, N. Y., a Corporation of New York. Filed Aug. 13, 1930. Serial No. 475,032. 6 Claims. (Cl. 62—126.)

1. In an evaporator for refrigerating systems, a header, means for automatically controlling liquid refrigerant to maintain a body thereof in the header, means for removing gasified refrigerant from the header, and a plurality of tubes having their ends secured to and extending through the rear end of the header below the level of the body of refrigerant, said tubes each being bent to form horizontally extending loops, the horizontal loops of the respective tubes being in respective superposed horizontal planes.

1,900,855. VENTILATING MEANS FOR REFRIGERATORS. George A. Aylsworth, Kansas City, Mo., assignor to Cold Control Corp., Kansas City, Mo., a Corporation of Missouri. Filed Jan. 12, 1931. Serial No. 508,110. 8 Claims. (Cl. 62—89.)

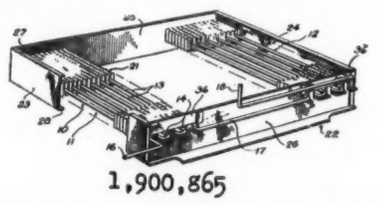
2. Refrigerating apparatus comprising a closed refrigerating chamber, a refrigerating unit in communication with said chamber, and means providing a single passageway constituting a combined air inlet and outlet to said chamber having various portions of said passageway maintained at different thermal states for reducing a continuous flow of ventilating air into and out of the chamber.

1,900,856. REFRIGERATOR CONSTRUCTION. George A. Aylsworth, Kansas City, Mo., assignor to Cold Control Corp., Kansas City, Mo., a Corporation of Missouri. Filed April 9, 1931. Serial No. 528,877. 5 Claims. (Cl. 98—51.)

1. A refrigerator construction comprising a cabinet having a refrigerant chamber and a noncommunicating refrigerating compartment, and means providing a single passage for the inflow and outflow of air from the exterior of the cabinet to and from the refrigerating compartment, said passage being exposed to the chilling action of said refrigerant chamber.

1,900,865. CONDENSER UNIT FOR REFRIGERATING APPARATUS. Samuel Moore, Buffalo, N. Y., assignor to Fedders Mfg. Co., Inc., Buffalo, N. Y. Filed April 21, 1932. Serial No. 606,640. 5 Claims. (Cl. 257—36.)

1. A condenser comprising a rectilinear frame having one wall formed with a slotted portion and an opposite wall



1,900,865

formed with a marginal notch, a tube unit having one extremity engaging through the slotted portion of said first wall and having its opposite extremity resting in the marginal notch of said opposite wall, and means secured to said opposite wall for closing the open side of the notch to retain the tube unit against removal.

GREAT LAKES DIVISION OF N.E.L.A. DISSOLVES

CHICAGO—Great Lakes division of the National Electric Light Association was officially disbanded at a meeting of conference delegates held here recently.

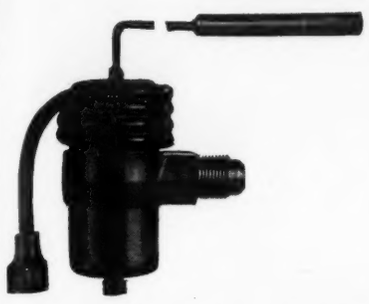
Principal business of the meeting was the passing of a resolution disbanding the Great Lakes section.

The forming of an independent association for the central states to replace N.E.L.A. was discussed, but it was decided to hold this in abeyance until some future date.

14 WATER COOLERS PLACED IN ALBANY BANK

ALBANY, N. Y.—Fourteen Kelvinator water coolers have been added to the equipment of the City Savings Bank building.

GLIDERS
Manufacturers and Repairmen!
A Glider that really Glides and Absorbs Vibration and Noise. Lid Knobs and Lid Rings that Stay put. Panels and Moldings that set off your work to advantage. Let us show you what Hard and Semi-Hard Rubber parts can do for your Refrigerator requirements. Send us Your Blue Prints Now!
VULCANIZED RUBBER CO.
261 Fifth Avenue
New York, New York
Established 1879



The PEERLESS THERMAL EXPANSION VALVE
(Pat. No. 1870090, Others Pending)

For use with Methyl Chloride and Sulphur Dioxide

The perfect thermostatic valve. The control always resides in the bulb due to the patented Peerless warming method. The PEERLESS will eliminate your expansion valve troubles.

List Price, $13.50. Write for bulletin.

PEERLESS ICE MACHINE CO., 515 W. 35th St., Chicago, Ill.

A NEW FIN COIL *by* PEERLESS

Wedge-locked and edge-locked aluminum fins on tinned copper tubing for methyl chloride, sulphur dioxide, F-12, etc.,—aluminum tubing for ammonia.

Absolute Metal to Metal Contact.

A Superior Coil in which Soldered Return Bends have been eliminated.

Priced to meet 1933 conditions.

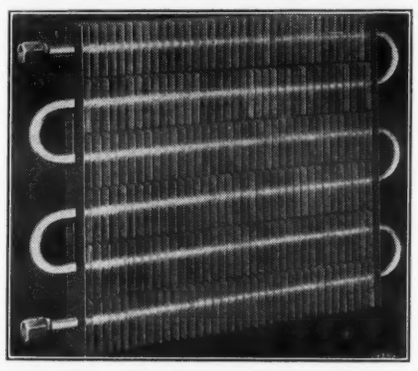
Write—Wire for Catalog.

PEERLESS ICE MACHINE CO., 515 W. 35th St., Chicago, Ill.

"REMPE" SUPER COLD FIN COILS

for

Methyl Chloride, Ammonia, F-12 and Sulphur Dioxide



REMPE "FIN COIL" CO.
3000 W. CARROLL AVE.
CHICAGO KEDZIE 0483 ILL.

REFRIGERATION SUPPLIES

We carry a complete stock of

EVERYTHING IN REFRIGERATION

including

"RANCO" THERMOSTAT CONTROLS

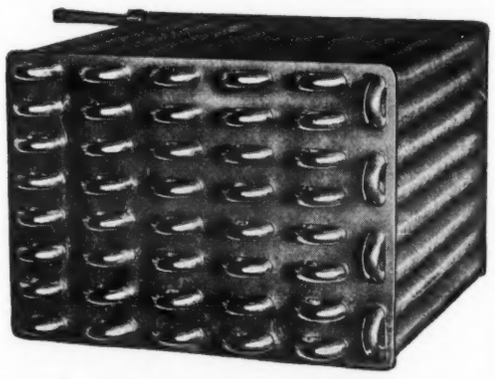
Save money, time and work—Buy everything from one source

MELCHIOR, ARMSTRONG, DESSAU CO.

116 Broad St. New York | 1135 Callowhill St. Philadelphia | Statler Building Boston

ROME EVAPORATORS

Highest Efficiency
With Smallest Number of Joints



Rome-Turney Radiator Co.
Rome, N.Y.

Makers of Rome Condensers and Helical Finned Tubing

EXTRA HEAVY FORGED FLARE NUTS

¼"—3.30 per c ⅜"—4.50 per c ½"—5.80 per c
For Mixed Lots of 100 Add 5 Per Cent

COPPER REFRIGERATION TUBING
20′ — 50′ — 100′ Lengths

Size	Length Per Lb.	1 to 24 Lb.	Price Per Ft.	25 to 49 Lbs.	Price Per Ft.
¼"	11 ft.	34 c	3¼c	28	2¾
⅜"	7 ft.	33 c	5c	27	4
½"	5 ft.	32 c	6½c	26	5¼

REFRIGERATION OIL
$1.50 per Gallon
Free From Moisture—Sludge—Acid

REFRIGERATION GASES
Ammonia, Carbon Dioxide, Ethyl Chloride, Isobutane, Methyl Chloride, Sulphur Dioxide.

All Other Sizes Available. All Prices Subject to Change Without Notice.

ICELESS REFRIGERATION ACCESSORIES COMPANY
2401-15 Chestnut Street Philadelphia, Penna.

They Have Their Place on Every Job
of handling refrigerators.

X-70 REFRIGERATOR TRUCKS fit all cabinets, with or without legs, or in the crate, eliminate one man on delivery and prevent damage to cabinet, floor or walls. Sturdy all-steel frame, 4" rubber tired wheels, one truck with top casters and handles for tilting and rolling into delivery truck and on stairs. Only pads touch cabinet. Complete set $34.50. Ball bearing swivel casters on one end $5 extra.

We also manufacture the new Balance Truck.

SELF-LIFTING PIANO TRUCK CO. FINDLAY, OHIO
Manufacturers of Trucks for 33 Years

KRAMER REFRIGERATION PRODUCTS

ALL-COPPER COMMERCIAL EVAPORATORS
"Hot-Dip" thermal bond between every fin and every tube

DOMESTIC EVAPORATORS
In 2, 3, 4 and 5 tray sizes with Chrome or Porcelain Cover Plates

CONDENSERS for HIGH SIDES

TRENTON AUTO RADIATOR WORKS
241 W. 68th St. New York, N.Y. TRENTON, NEW JERSEY 5145 Liberty Ave. Pittsburgh, Pa.

QUESTIONS

Refrigerator Lights

No. 1110 (Distributor, Pennsylvania)—"Can you suggest sources of supply for interior electric lights to be furnished as a refrigerator accessory?

"We would also appreciate the name of the firm which sells those metal ice balls that are sometimes used instead of ice cubes. These cubes retain their cold for several hours."

Answer—For interior electric lights—M. M. Fleron & Son, Inc., Trenton, N. J., or W. C. Smith, Mt. Vernon, N. Y. For ice balls—Silverice, Inc., 420 Lexington Ave., New York, N. Y.

Ice Cream Freezer

No. 1111 (Distributor, California)—"Can you put me in touch with a manufacturer of a device that can be installed in the freezing unit of a standard refrigerator to make ice cream?"

Answer—S. M. Howes, 511 Medford St., Boston, Mass.

Bets on Statistics

No. 1112—"To settle a bet which I have made with another party, will you kindly advise me the total number, or total sales in dollars, of domestic and commercial refrigerators sold last year by the following companies: Westinghouse, Kelvinator, Frigidaire, and General Electric. I am asking this of you because I know you are impartial in the matter."

Answer—Unfortunately for the settlement of your bet, the leading manufacturers do not make public reports of their production or sales of electric refrigerators.

Their statistical reports are furnished monthly to the Refrigeration Division, National Electrical Manufacturers Association. The statistical department of the association prepares only total figures, which are officially released in the pages of ELECTRIC REFRIGERATION NEWS.

The procedure for handling these statistical reports is controlled by an elaborate set of rules, and is devised so that there will be no leak of information concerning the affairs of any one company.

M. Leitner's Address

No. 1113 (Installation Contractor)—"In the March 8 issue of ELECTRIC REFRIGERATION NEWS is an announcement of a 'Port-A-Bar' beer cooler made by M. Leitner & Co., Chicago. We addressed them at Chicago, but the letter was returned as we did not give any street address. Will you kindly advise us the street address."

Answer—2322 Ogden Ave.

British Representation

No. 1114 (Customs Agent, New York)—"Clients of ours in London are very desirous of obtaining sole representation in the United Kingdom and the Irish Free State for a standard line of household electric refrigerators to compete with Frigidaire, Kelvinator, and General Electric.

"If you can advise us which firms would, in your opinion, be suitable for us to get in touch with regarding this, it will be appreciated."

Answer—See advertisements in ELECTRIC REFRIGERATION NEWS.

Replacement Parts

No. 1115 (Dealer, Florida)—"As we are planning to open a general service department, can you advise us where to obtain a complete line of replacement parts for all makes of electric refrigerators?"

Answer—Get in touch with the manufacturers of refrigerators you plan to service, or communicate with any of the suppliers of replacement parts listed on page 341 of the REFRIGERATION DIRECTORY and MARKET DATA BOOK.

Refrigerated Truck Manufacturers

No. 1116 (Washington, D. C.)—"We have an inquiry from a French firm which wants to get in touch with American manufacturers of refrigerated trucks. As we do not have a list of these manufacturers, will you kindly send us such a list."

Answer—Manufacturers of the various types of refrigeration systems for trucks, insulated truck bodies, and parts are listed on pages 367 to 374, REFRIGERATION DIRECTORY and MARKET DATA BOOK.

ElectrIce Information

No. 1117 (Dealer, Ohio)—"Can you tell us where to secure a service manual on the ElectrIce unit which was used some time ago in Belding Hall refrigerators?"

Answer—Write to the Gibson Electric Refrigeration Corp., Greenville, Mich., which bought up the Belding Hall company.

Financial Statements

Westinghouse Electric & Mfg. Co.

PITTSBURGH—Although showing a loss of $8,903,540 for 1932, Westinghouse Electric & Mfg. Co. closed the year with its cash position somewhat better than at the end of the previous year—the cash and marketable securities being $32,851,763 at Dec. 31, 1932, compared with $32,148,727 at Dec. 31, 1931, according to the annual report which has just been mailed to the stockholders.

Sales billed for 1932 were $77,073,586 compared with $115,393,082 for 1931.

Additional charges amounting to $8,099,986 were made during 1932 direct against surplus. These include $2,542,089 dividend paid on the preferred and common stocks; $3,575,187 accounts receivable from Radio Corp. satisfied as part consideration against certain new agreements; $902,407 deposited with the Westinghouse Electric Annuity Trust, being residuary payments and adjustments due to meet the actuarially calculated costs of the plan, from inception; $708,141 provision for decline in value of securities; and $373,161 miscellaneous.

$62,046,797 Surplus

As a result of these charges and the operating loss for 1932, surplus at Dec. 31, 1932, was $62,046,797 compared with $79,050,324 at Dec. 31, 1931.

Current assets amounted to $78,816,115 and current liabilities to $4,333,692—a ratio of 18.2 to 1. Working capital was $74,482,423. This compares with Dec. 31, 1931, as follows: current assets $100,522,486 and current liabilities $7,368,011—a ratio of 13.6 to 1, and working capital $93,154,475.

Inventories amounted to $30,266,955 at Dec. 31, 1932, compared with $39,619,471 at Dec. 31, 1931.

Investments in wholly owned companies decreased $1,633,144, this being the net result of cash advances to the Westinghouse Electric Supply Co. and its operating losses for 1932, according to the report.

The Supply Co. in 1929 did a business of $54,292,079; in 1930 a business of $46,687,985; in 1931, $37,356,496; and in 1932, $22,428,176.

In the balance sheet at Dec. 31, 1931, the value of plant and equipment is shown at $73,539,936. This figure was arrived at from the appraisal of 1911, plus subsequent additions, less reserves accrued from operations during intervening years. A review of plant and equipment inventory was put under way during the past year. This has resulted in a writedown of both the gross value and the reserves in an amount of $3,671,540, leaving the net of $73,539,936 unchanged.

Cash Dividends Paid

During 1932, cash dividends amounting to $2,542,089 were paid on the preferred and common stocks and charged to surplus. On preferred stock, dividends of 87½ cents each were paid Jan. 30, April 30, July 30, Oct. 31, amounting to $279,919. On common stock, a dividend of 62½ cents was paid Jan. 30, amounting to $1,615,865 and a dividend of 25 cents was paid April 30, amounting to $646,304; common dividends totaled $2,262,169.

The total assets are carried on the balance sheet at $202,335,502.

General Electric Co.

SCHENECTADY, N. Y.—General Electric Co. reports a profit of $14,404,110 for the year 1932. After provision for dividends of 6 per cent on the special stock, there remained available for common stock dividends $11,829,078 or 41 cents per share.

This compared with $38,381,990 or $1.33 per share in 1931.

Dividends on common stock declared during 1932 amounted to $15,864,157, leaving a deficit from the year's operations of $4,035,080, which was charged to surplus. Dividends on common stock are now being paid at the rate of 40 cents per share.

Principal changes in the balance sheet are noted as follows:

Manufacturing plant has been written down from $46,061,019 to $44,789,520.

Radio Corp. stock distributed as a dividend to General Electric stockholders on Feb. 20, 1933, valued at $26,440,265, was removed from investments and charged to surplus.

The investments in associated companies and miscellaneous securities were appraised at the end of the year at market, or fair value where no market existed, with the allowance for foreign exchange rates, and amounted to $153,579,518. The decrease resulting from revaluation, amounting to $19,498,310, was charged to surplus.

Current assets at the end of 1932 were $179,888,465, of which $118,608,017 was in cash and marketable securities. In 1931 current assets amounted to $219,086,511, of which $122,178,933 was cash and marketable securities.

The current assets were 10.9 times current liabilities in 1932, compared with the 7.7 to 1 ratio in 1931.

CLASSIFIED

PAYMENT in advance is required for advertising in this column.

RATES: Fifty words or less, one insertion $2.00, additional words four cents each. Three insertions $5.00, additional words ten cents each.

REPLIES to advertisements with box numbers should be addressed to the box number in care of Electric Refrigeration News, 550 Maccabees Bldg., Detroit, Mich.

POSITIONS WANTED

CONNECTION wanted by a man who has had 10 years experience with small unit refrigeration. 6 years as Factory Branch Service Manager and 2 years as Service Manager for a distributor. Willing to travel. Would make ideal Field Service Representative Box 553.

Factory District Manager and Distributor Sales Manager with ten years in washing machine and radio business desires connection with refrigeration manufacturer or large distributor. Can show producing record in sales and successful training of wholesale and retail sales organizations. Willing to begin regardless of basis if potential future is offered. Box 554.

TO General Managers of Conservative Manufacturers. I want an opportunity to convince you that a manufacturer's Service Department can be operated efficiently and as a decided asset to your Household and Commercial Sales activities in the United States and abroad. My record to date warrants your investigation of this advertisement. Box 552.

DISTRIBUTORS WANTED

GOOD opportunities open to distributors who are able to handle a complete line of Refrigeration gases and Lubricating oils. No wasteful or dangerous transfers. Territory reserved. Box 551.

INDEPENDENT SERVICE COMPANIES

CALL AL HENDERSON for service on all makes of Refrigeration Equipment. Estimate gladly given. Phone 3-1717, 102 So. Lewis, Tulsa, Oklahoma.

Manufacturers — Distributors—Commercial, domestic installation and service in Camden—Burlington—Gloucester Counties. Gordon & Melick, 780 Wright Ave., Camden, N. J.

CHICAGO, ILL., and ALL SUBURBS. Refrigeration service, installation, maintenance. All makes—One of the oldest independent service organizations in Chicago with competent staff of thoroughly trained men. Financially sound. Inquiries invited from mfrs. and distributors. Refrigeration Maintenance Corp., 365 E. Illinois St., Chicago, Ill. Phone Superior 2085-86-87.

MANUFACTURERS are constantly inquiring for reliable local service organizations prepared to handle installation and maintenance work in communities not served by their regular distributors and dealers. Your business card in this column will bring this profitable business direct to you. Special low rates are now offered to independent service men. For only $10.00 you may carry a 4-line advertisement for three months. Ask for details. Address Electric Refrigeration News.

MISCELLANEOUS

SEND one dollar in cash, stamps, or P.O. money order for 17 week's trial subscription to Electric Refrigeration News and keep informed regarding important developments in the industry during the active selling season.

Faithful Service . . .

An organization attains leadership through the faith it engenders by the work it performs. A superior service can be maintained only by constant alertness and progressiveness.

We are constantly serving the Electric Refrigeration Industry with a superior training that is recognized as being dependable and indispensable.

UTILITIES ENGINEERING INSTITUTE
Wells at Kinzie Street, Chicago, Ill.

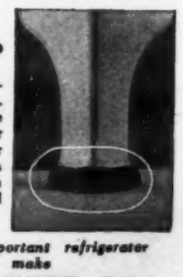
Complete Refrigeration Training By Extension Methods. Seventh Year.

How to . . . at Lower COSTS! precision built SHAFTS

save money on Motor, Transmission, Crank, Eccentric and Compressor Shafts: Send us your blue prints, we will send you our prices. Write today.
MODERN MACHINE WORKS
156 N. Milw. St. Milwaukee, Wis.

NEW USED
100 or more Electric Refrigerators late type 4, 5, or 6 cu. ft. wanted at once for cash, standard makes only.
Washing Machines bought, new or used.
Write or wire *complete* details and specifications
London-Berke Company
S. W. cor. 5th & Girard Ave., Philadelphia, Pa.

Universal Tru-Fit Gliders . .



. . provide quick, lasting protection to linoleum and floor. Indispensable for accurate leveling. Entirely of rubber with embossed soft rubber shield which adds deft touch of smartness. Can be used on any make refrigerator. Send for samples and prices.

Ask about the other important refrigerator accessories we make

THE AETNA RUBBER CO.
Ashtabula Ohio